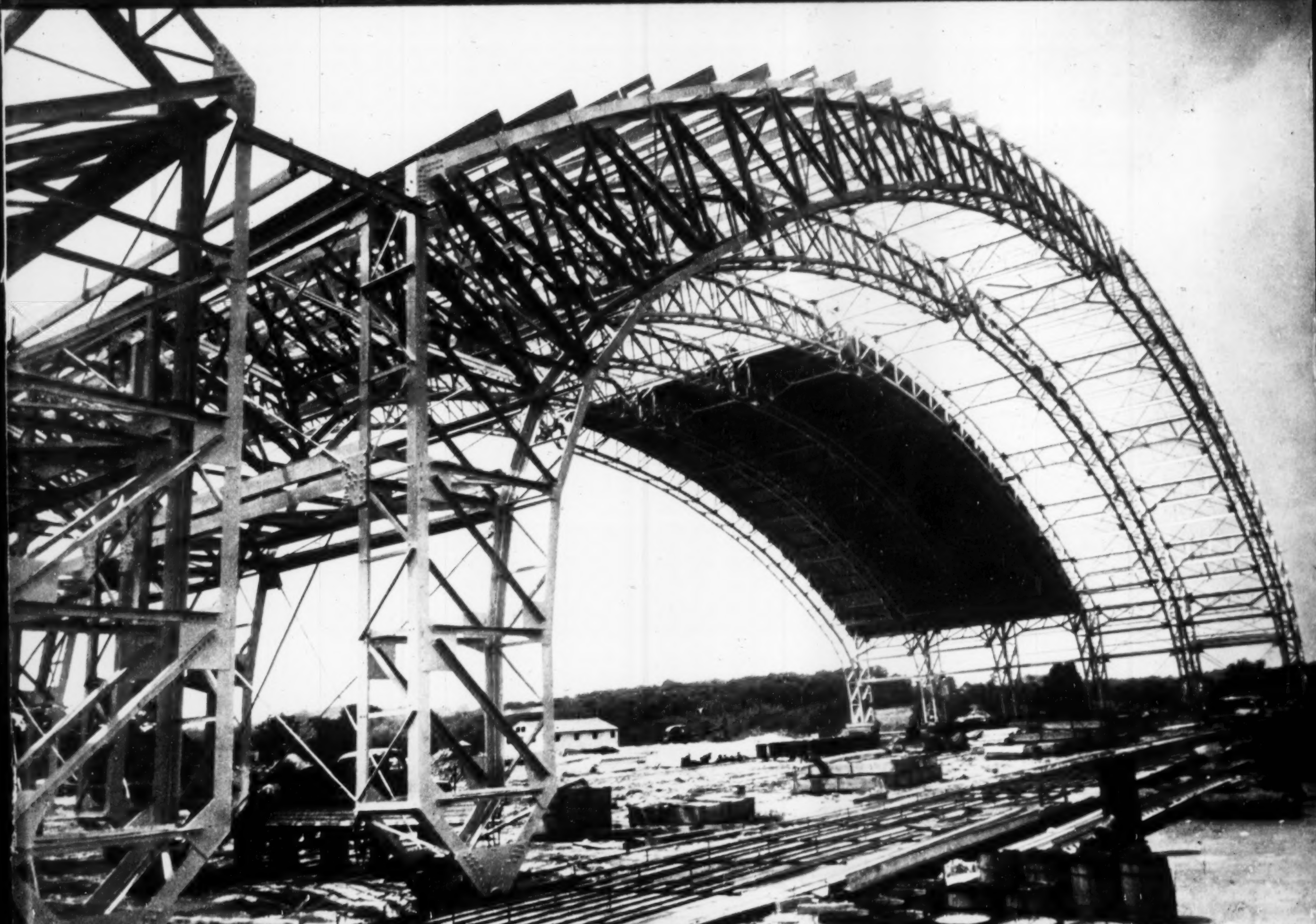
ENGINEERING NEWS-RECORD

EIGHTIETH YEAR OF PUBLICATION



[illegible] sets a new record for [illegible] steel arches [illegible]

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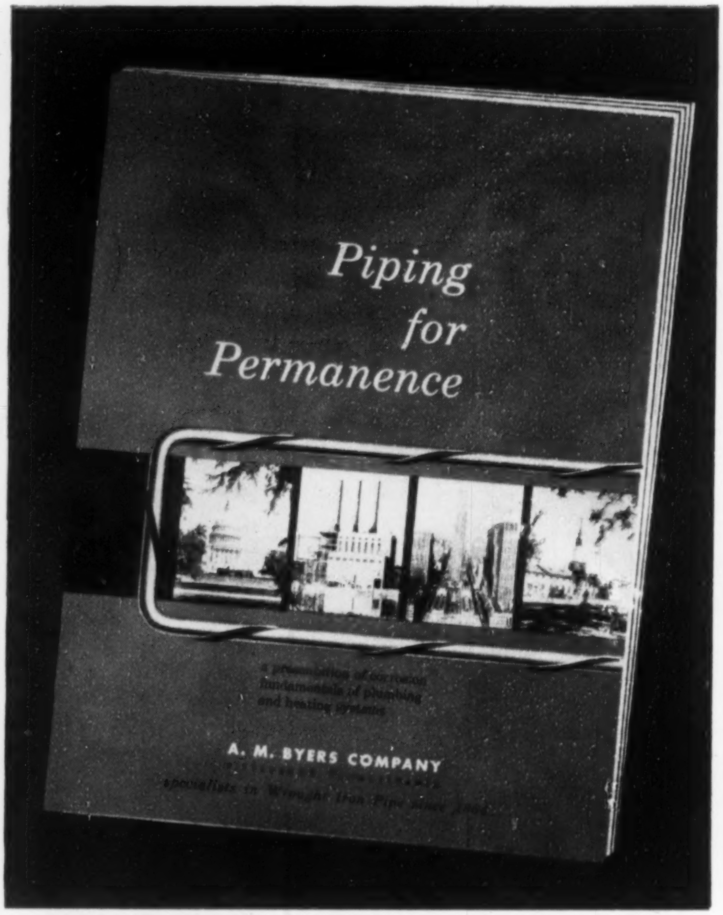
...PIPING FOR PERMANENCE


Piping for Permanence
a presentation of corrosion fundamentals of plumbing and heating systems
A. M. BYERS COMPANY
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The nature of piping problems in heating and plumbing systems, and the methods by which they can be solved, are discussed in detail in this 32-page Bulletin.

Prepared by our Engineering Service Department, this Bulletin is based on the information we have gathered from analysing complete data on thousands of piping installations of every type, under all kinds of conditions. This pool of experience has been condensed between covers in a clear, easily followed story to help you realize greater piping economy in your installations.

The bulletin also includes a roundup of wrought iron pipe installations from every part of the country and presents practical evidence of the results obtained from the use of the material. These past service records are providing leading engineers everywhere with a practical guide for today's selection.

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You'll find information on:

Requisites of a piping system—brief review of piping material properties essential to long-life, economical service.

Building-piping systems—definition of individual services; brief discussion of conditions that threaten service life in plumbing and heating systems and solutions; fundamentals of design and installation that may be used to reduce the rate and severity of corrosion.

Water and water problems—background facts on interpretation of water analysis and water treatment.

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CORROSION COSTS YOU MORE THAN WROUGHT IRON

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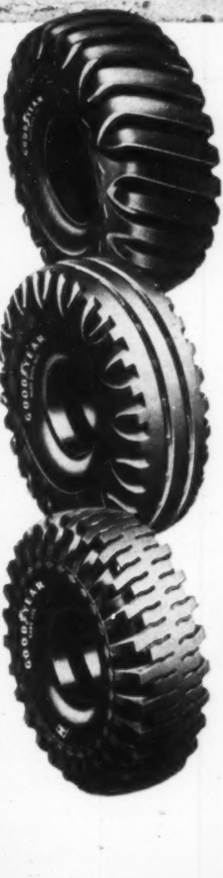
ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

HEAVY LOADS, JAGGED ORE AT KAISER MINE---
A GRUELING TEST FOR TIRES!
GOODYEAR
WAS THERE!

Road Lug—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio



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for stamina and full pull, forward or reverse, on all kinds of tire-killing work.

HARD ROCK RIB
for front wheels on all tire-killing service. Rugged—smooth-rolling — easy-steering.

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for toughness and super-traction OFF the road and long, smooth mileage ON the road.

The Kaiser iron mine at Eagle Mountain, California, produces ore that averages 53.5 per cent iron. Such rich ore is extremely heavy and, under such tremendous dead weights, a pothole or chunk of fallen ore can be a tire-killer.

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That's why Goodyears are so often "there" on the jobs that make history—and money. They're specified by the men who know their tire costs per cubic yard! Goodyear, Truck Tire Dept., Akron 16, Ohio.

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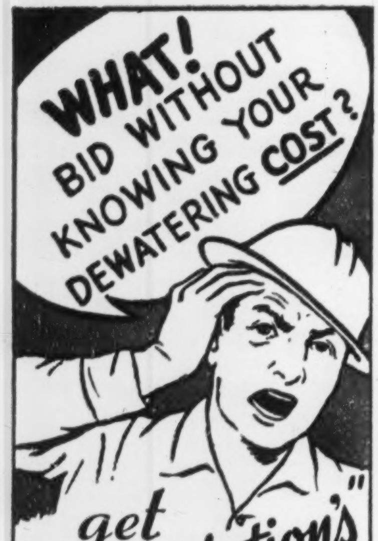
MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND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Robert F. Boger
Publisher

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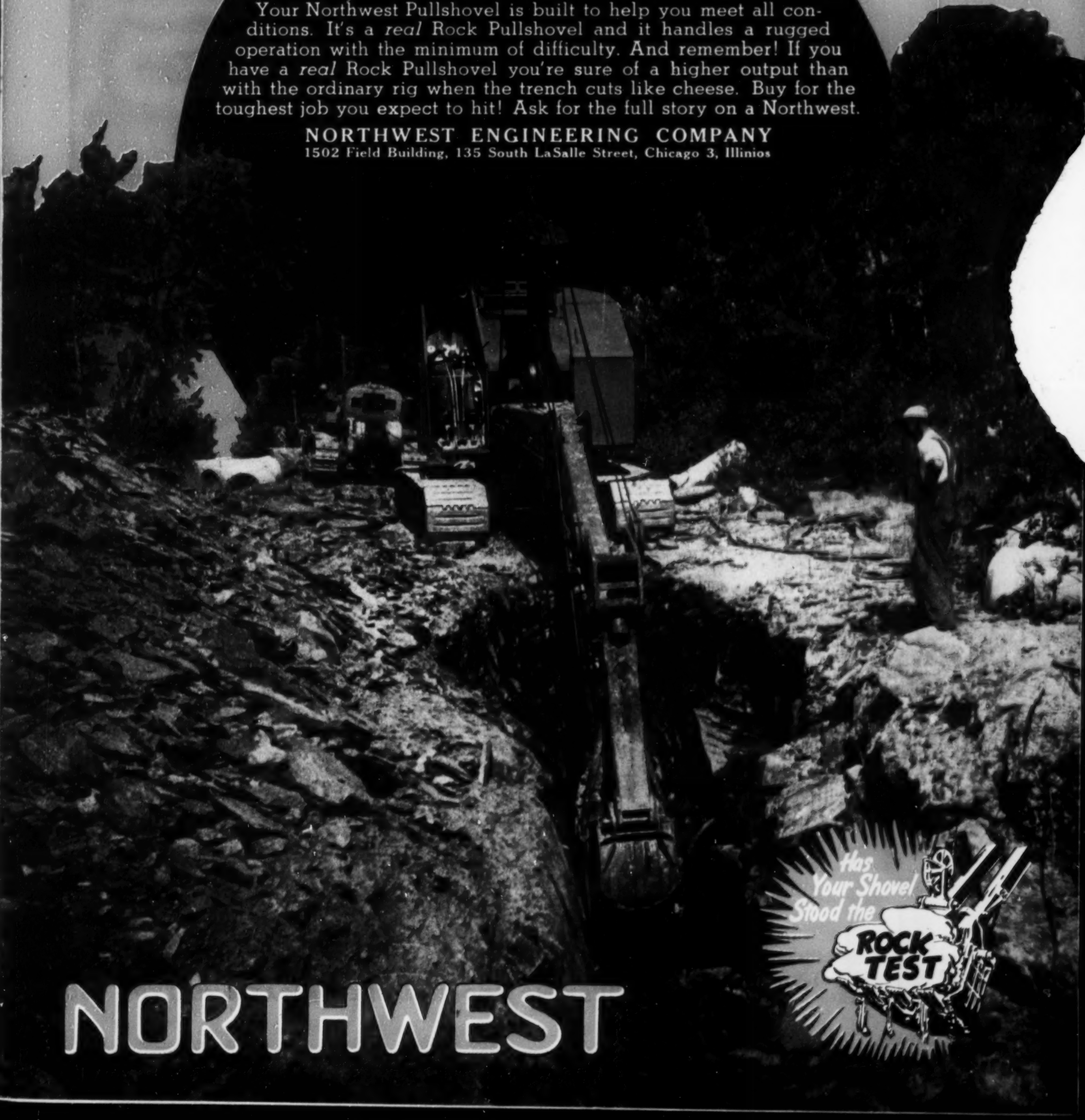

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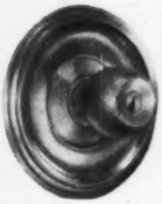
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No other lock gives you so many new knobs and new escutcheon combinations

Illustrated are only 10 dramatic variations of designs and finishes

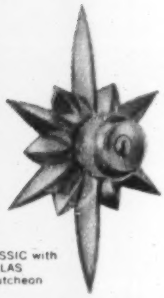
Here at last is a lock—a Yale Lock—a moderately priced lock—which enables an architect and his contractor to guarantee their client Yale security along with a combination of styles and finishes which satisfy the most artistic requirements.

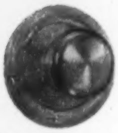
The range of the new Yale 5300 series is truly dramatic. It fulfills the need for marrying functionalism with modern decorative trends. It gives doors new beauty.

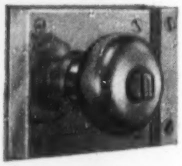
Here is one more reason why Yale is, indeed, the greatest name in hardware.

May we send you a fully illustrated and descriptive catalogue complete with specifications, functions, and engineering data? The job you now have on your board deserves Yale.

Now you can offer Yale residential hardware for all classes of construction. Ask your Yale contract hardware specialist.


CLASSIC with
DALLAS
escutcheon


LITCHFIELD with
SAVOY
escutcheon


LITCHFIELD with
WILLIAMSBURG
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TROY with
NORFOLK
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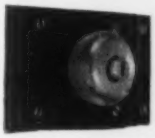
LITCHFIELD with
WILLIAMSBURG
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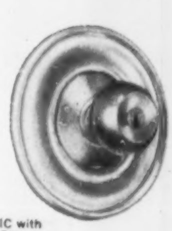
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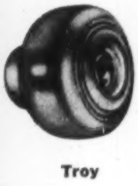
Eight new escutcheons that combine with four new knobs . . . two new entrance handles . . . two new lever handles Moderately priced . . . Precision engineered . . . Yale security

Litchfield


Troy

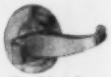
Classic

Nassau

Westbrook

Arlington

Deauville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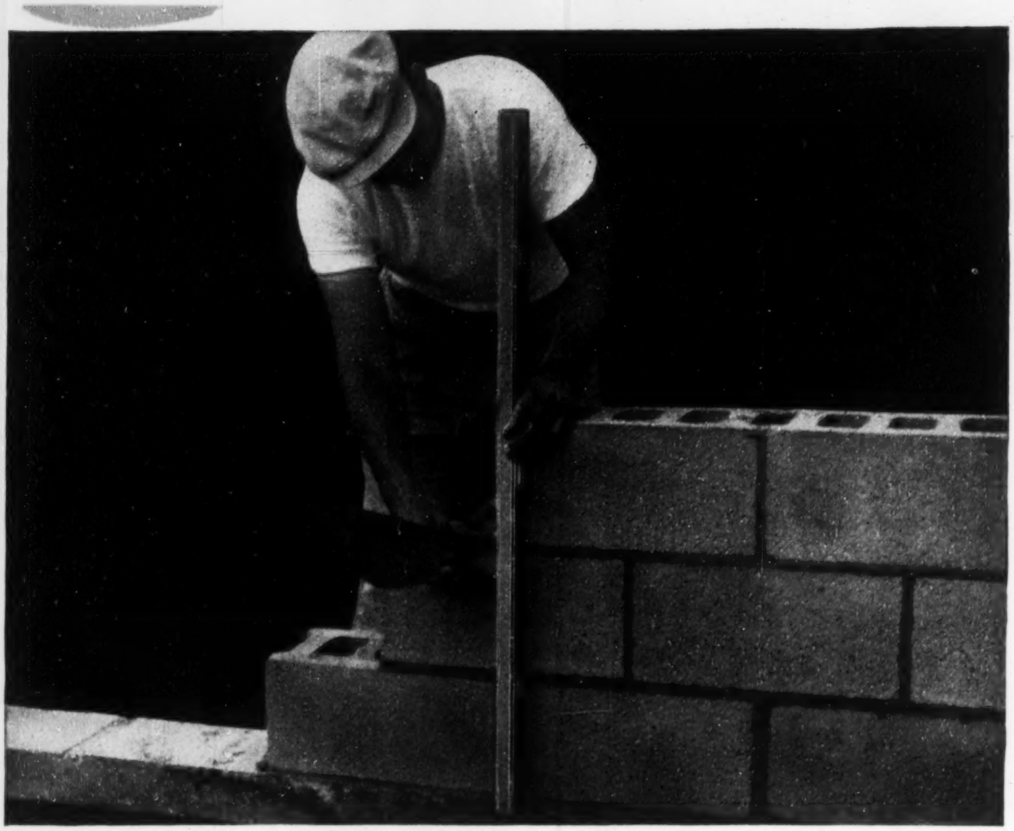
BRIXMENT

Better Mortar for Blocks



BETTER BOND

To obtain good concrete block walls, the best possible bond must be secured between the block and the mortar, wherever they come into contact with each other.

The mortar must stay soft and plastic long enough to let the bricklayer level, plumb and straighten the unit — to adjust it to its final position in the wall — before the mortar stiffens.

Brixment mortar has high water-retaining capacity. This prevents the porous unit from sucking the water out of the mortar too fast. It gives the bricklayer sufficient time to bring the block to its final position, while the mortar is still plastic enough to form a good tight bond with the block.

BRIXMENT
CEMENT FOR MASONRY
BRIXMENT
LOUISVILLE CEMENT CO.
BRIXMENT

READER COMMENT

What about arctic sewage?

Sir: Referring to the Fairbanks, Alaska, water distribution article on p. 30 of your issue of Feb. 4, I have a question:

The system described appears well adapted to getting the water to the customer under the arctic conditions described, but it leaves one with a desire to know how the dirty water is disposed of.

Hugh Pastoriza
Coffin & Burr
Investment Securities
New York, N. Y.

Sir: Regarding methods at present employed in the city of Fairbanks, Alaska, for disposal of sewage, the following will give a brief outline:

No treatment is applied to the domestic or industrial sewage at this time. The city has applied for financial assistance through the Alaska Public Works Department to construct a treatment plant adequate to handle the present and estimated future needs of the metropolitan area.

Sewage collection under severe climatic conditions such as exist in the Fairbanks region pose problems not unlike those encountered in the water distribution system our firm had the privilege of designing, although the method of solution is obviously quite different. The present sewage collection system is composed of wood-stave pipe 6 to 24 in. in diameter, extending throughout a major portion of the city. This carries the sewage directly to the Chena River below the city. Many of the lines are as shallow as 3 ft below the surface and are the source of many problems for those responsible for keeping them open. Flushing wells are located at the end of all laterals so that steam or charges of water can be injected into the system in case a lateral freezes. This has proved quite unsatisfactory in the past from an operational and maintenance standpoint since the bulk of the freezing occurs during the most severe weather, and maintenance work at −60 F is next to impossible.

The Arctic Health Research Center, U. S. Public Health Service, is now conducting experimental work in the Fairbanks area with automatic flushing wells to maintain the sewers in operative condition. These wells are supplied from shallow wellpoints with a small shallow-well pump discharging into a 400 to 600-gal reservoir which, when full, siphons the entire volume of the tank into the sewer in a heavy continuous charge, thus maintaining a velocity in the sewer sufficient to carry away the normally low flow of domestic sewage which tends to freeze and block the mains.

The Territorial Health Department is cooperating with the Arctic Health Research Center in conducting and pioneering in the experimental work in sewage collection and disposal in arctic climates. Pilot plants for sewage treatment which will afford suitable treatment to the sewage under severe climates, are being operated at present.

Herbert C. Westfall
R. W. Beck and Associates
Seattle, Wash.

Give full bar details

Sir: I have just read with great interest Stephen D. Teetor's analysis of pitfalls in flat plate construction and his listing of safeguards in trying to avoid them (ENR March 18, p. 49).

To the average person, including most construction workers and the advertising department of at least one major steel company, reinforcing used in concrete construction is there merely "to strengthen the concrete." To the uninitated, therefore, presence of steel in a beam, slab or column is sufficient; they cannot see that its location or length can have very much to do with the strength of the finished structure.

Concrete work is done by carpenters, wire lathers and cement workers, who, though they may be thoroughly competent in their respective trades, do not have the least idea of how a concrete beam or slab acts nor of the purposes of the reinforcing. It is therefore essential that all information given construction crews be complete, accurate and specific so that no knowledge of engineering shall be required to build the structure properly. Furthermore, most plans being issued today require the services of a competent engineer to interpret them before construction crews can use them.

In the past, detailing of reinforcing steel has been a more or less mechanical procedure at the very best, of a semi-professional nature. Today, a full knowledge of reinforced concrete theory and construction practice is required.

This firm, of which I am a member, has for the last eight years used professional engineers as detailers, and in cases too numerous to mention, has found it necessary to consult with the designing engineers to detail the jobs

(Continued on page 12)

BRIDGING THE COUNTRY

THE SUPERIOR BRIDGE DECKING FOR SMALL OR LARGE JOBS

- ★ 80% OPEN
- ★ SELF-CLEANING
- ★ SELF-DRAINING
- ★ NON-FLOAT
- ★ NOT AFFECTED BY WIND PRESSURE
- ★ LIGHT WEIGHT
- ★ STRONG, SAFE ROAD SURFACE
- ★ MINIMUM OF ROAD MAINTENANCE

IRVING DECKING

"A BRIDGE IS ONLY AS GOOD AS ITS DECK"

- **Also gratings for bridge sidewalks and gutter catch basins.**
- **No accumulation of dirt or snow.**
- **For further information and engineering data ask for catalog.**

IRVING SUBWAY GRATING CO., INC.
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OFFICES and PLANTS at
5063 27th St., Long Island City 1, N. Y.
1863 10th St., Oakland 20, California

WATER Paces Lakeland's Business Growth!

Allis-Chalmers Helps 'World's

THE "WORLD'S CITRUS CENTER" is being helped by Allis-Chalmers in the race to keep water works ahead of population growth. In ten years, Lakeland's population has increased 70 percent, meters have doubled, and gallonage pumped has nearly tripled!

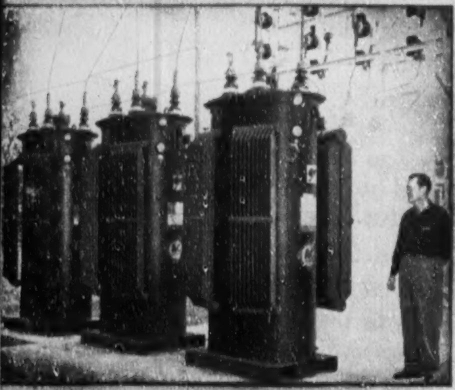
Lakeland is so named because of the 12 lakes within its city limits. It is near the geographical center of Florida, in Polk county . . . producer of a third of all Florida citrus, two thirds of U. S. phosphate, and more cattle than any other county in the state.

Lakeland gets its water — 154,363,500 gallons per month average in 1952 — from 11 deep wells running down to 1201 ft in depth. Storage capacity is 1,778,000 gallons. Following aeration, Allis-Chalmers pumps . . . driven by Allis-Chalmers motors . . . using Allis-Chalmers generated power . . . force the water into the city mains.

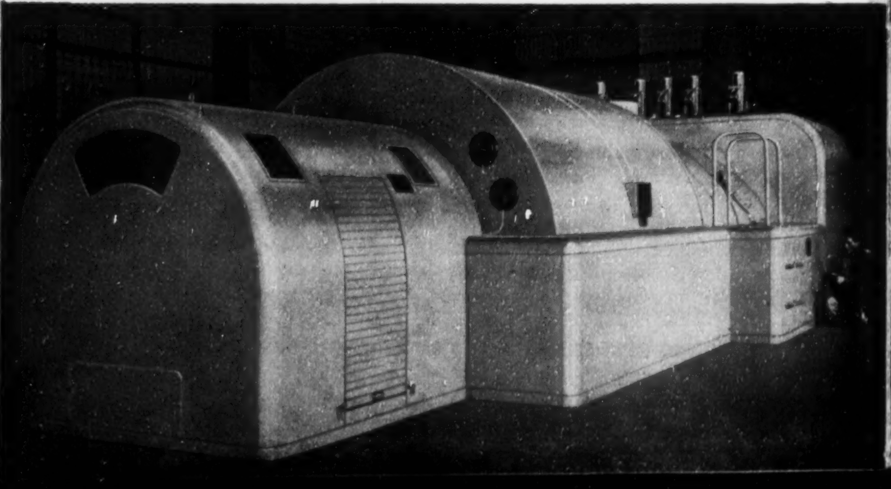
Lakeland has learned by experience the wisdom of depending on Allis-Chalmers for a complete range of public works equipment. Some of their A-C equipment has been in operation for over 30 years and maintenance has been "practically nil." A-C equipment at Lakeland ranges from three turbine-generators through transformers, M-G sets, and controls to motors and pumps of many sizes.

When *your city* plans expansion or modernization, do as Lakeland and other leading cities are doing — take advantage of Allis-Chalmers experience as builder of the world's widest range of public works equipment. Literature on all products available; Public Works Bulletin 25C6607A and Pump Bulletin 08B6146B just off the presses. For your copies, just call your nearest A-C sales office or write to Allis-Chalmers, Milwaukee 1, Wisconsin.

A-4070



POWER TRANSFORMERS were furnished by Allis-Chalmers. Those above are 833 kva, single phase, self-cooled units in Lakeland suburban substation. Other electrical equipment supplied includes controllers for the 150 hp deep well pump motors.

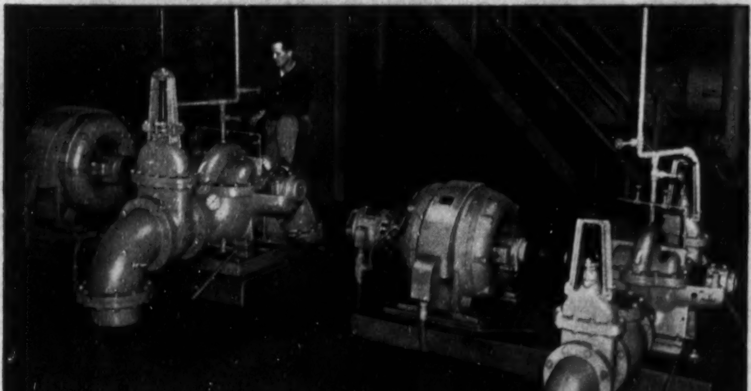


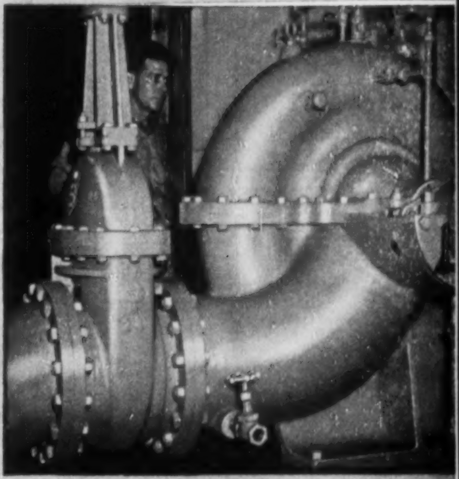
NEW POWER HOUSE features Allis-Chalmers 20,000 kw steam turbine generator unit. In addition to the steam turbine, hydrogen cooled generator, main and pilot exciters, and hydrogen control equipment, A-C also furnished the three 6 x 4 in., 450 gpm, 1150 psi boiler feed pumps.

Citrus Center' Expand Water Works

LAKELAND FROM THE AIR, looking east. Over 600,000 people live in a 50 mile radius from Lakeland, Fla. Old power house, containing two Allis-Chalmers 5000 kw steam turbine generator units and associated equipment, is on left shore of Lake Mirror in center of above photograph.

CITY MAINS ARE SUPPLIED by Allis-Chalmers pump-motor teams ranging in capacity from 2000 to 4000 gpm each. Typical setup shown below: at left is a 12 x 10 in. pump rated 4000 gpm at 160 ft head, driven at 1800 rpm by 200 hp motor. At right is a 2000 gpm, 8 x 8 in. pump driven by a 100 hp, 1800 rpm synchronous motor.



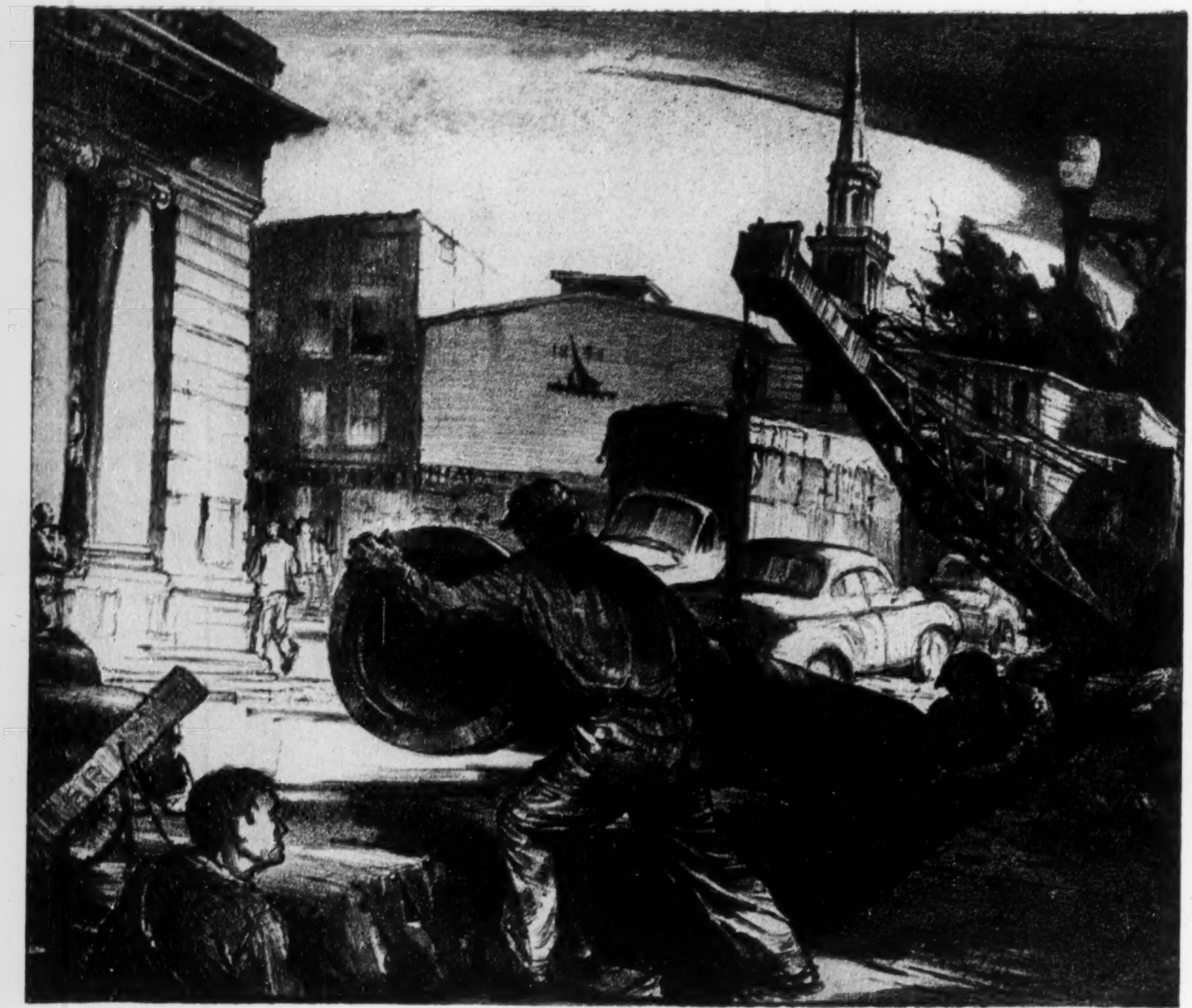


PUMPS RANGE IN SIZE from 1¼ x 1¼ in. to this 16 in., 6000 gpm, 16 ft head unit furnishing condenser cooling water in old power house. Here Allis-Chalmers supplied two 5000 kw steam turbine generator units, boiler feed and condenser circulating water pumps, and crane motor-generator set.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

Builders of the World's Widest Range of Public Works Equipment



Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

THIS ILLUSTRATION shows the laying of cast iron pipe in the business section of a small town, which could be for water, gas or sewerage service. Such a situation calls for a pipe with proved long life to be placed beneath the costly permanent pavement. Whether in the business district, residential area or the country, cast iron pipe has established an enviable record of low cost per service year.

We are in an excellent position to furnish your requirements for cast iron pipe, either centrifugally cast in sizes 2- to 24-inch or pit cast for larger sizes—all of which are produced under rigid quality controls and in accordance with standard specifications.

U.S.
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PIPE
FOR WATER, GAS, SEWERAGE
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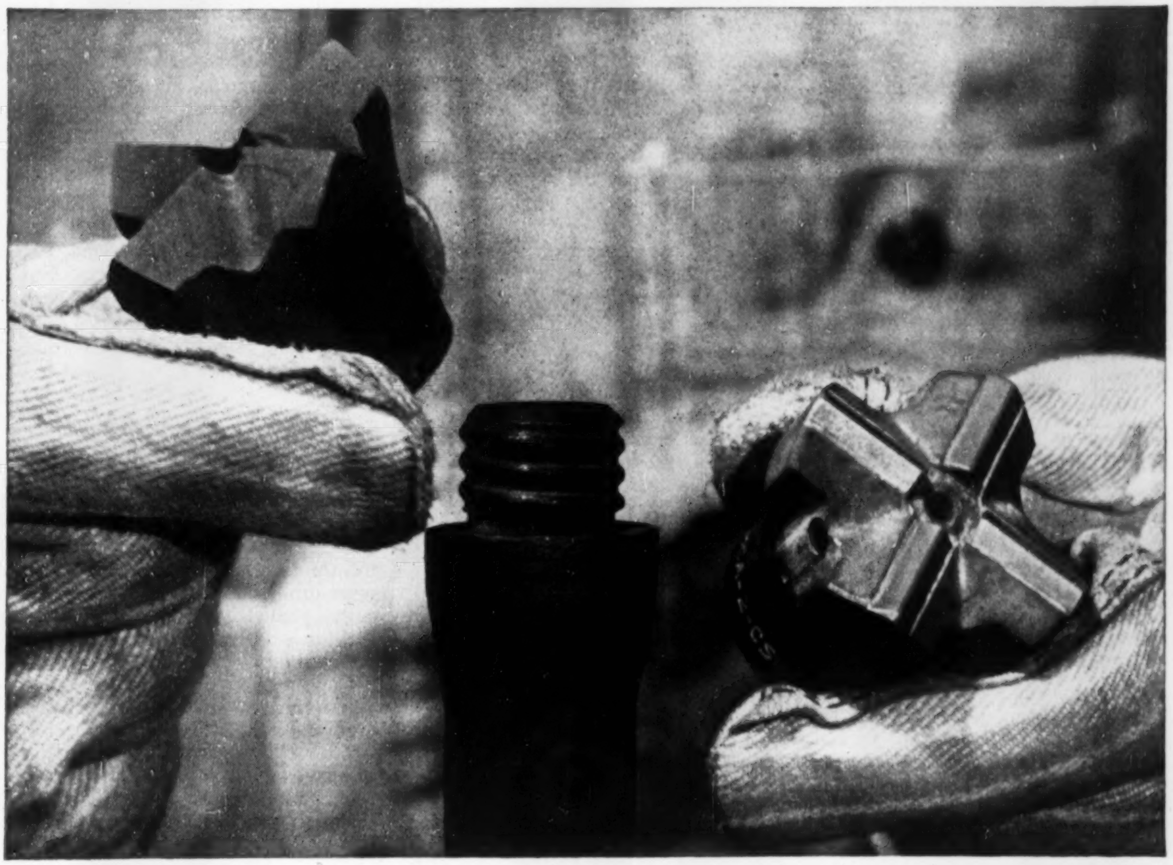
United States Pipe and Foundry Co.,
General Office, 3300 First Ave., N. • Birmingham 2, Ala.
Plants and Sales Offices Throughout the U. S. A.

No costly delays to change steels with TIMKEN® interchangeable rock bits!



Dozens of different Timken® rock bits fit the same drill steel!

YOU get quick bit changes plus the right bit for the job when you use Timken® multi-use and carbide insert bits.

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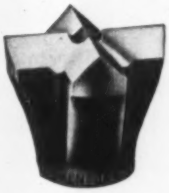

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properly. Very often, our engineers have suggested changes in the reinforcing that meant increased tonnage. At all times, our main concern has been for the safety of the structure. We try to follow faithfully the standard details of the designing engineers in regard to length of bars, cut-off points and other significant features and know of no responsibile detailing firm that would make bars shorter than the design details call for.

Unfortunately, many contractors are unwilling to pay the engineering fees necessary to have the reinforcing steel detailed by engineers competent to do so. Many free lancers have put detailing on a purely cost-competitive basis, and therefore, any errors or omissions in the designing engineer's plans are perpetuated in the detailing. The designing engineer loses his last chance to control reinforcing, because of cursory and inadequate checking of shop drawings.

If an incompetent detailer makes a bar too long, it can easily be cut off in the field. If, however, he details it too short, what control does the designer have?

As far as slab depth is concerned, this can be controlled adequately by requiring that all shop drawings show the height of slab spacers and highchairs required to support the reinforcing. Very few designers ever bother with this phase of detailing.

Here, it seems to me, is the crux of the whole matter. Everything necessary should be planned in advance by persons competent and experienced in concrete construction, so that no construction details are left for field men to try to work out on their own. In this way, and with a minimum amount of competent field inspection, the designer can be sure of getting what he wants; namely, a safe structure.

EMANUEL SEIF
Structural Engineering Services
New York, N. Y.

H-20, or just a lot of water—

SIR: On page 47 of the Feb. 25, 1954, ENR in the article entitled "Inclined-arch Bridge Spans 250 feet" the statement that "the structure was tested by flooding the roadway with water to a depth equivalent to H-20 loading plus concentration on three lanes" seems to me to be an insult to the intelligence of any competent structural engineer.

Since a fully uniform load, such as the water would be, will not cause any bending moments in either an arched or a suspension bridge system and the entire load can be supported by only axial thrusts in the arch and tension in the tie, it is difficult for me to see how a test load of this nature can be equivalent to the effect of even a single H-20 truck placed in the worst position.

I have admired the novelty of design of this structure but it is difficult to gain any economy in a structure such as this when your floor system has to be so much wider than a conventional design to gain the same vertical clearances at the face of curb and the only thing you can save is a little overhead bracing that does not weigh very much in the first place.

The Centennial Bridge over the Mississippi River at Rock Island, Ill., is an example of a well designed tied arch bridge that I believe is still very competitive in cost as compared with this unusual and spectacular type of construction.

NED L. ASHTON

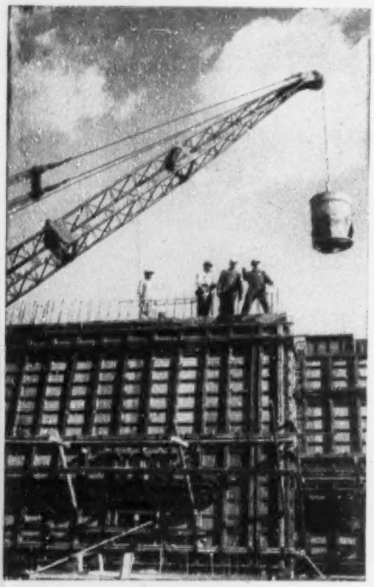
SIR: The above somewhat intemperate outbrust is unfortunate in that it is based on a technical misconception of the action of the structure. It may be some consolation to Professor Ashton that he is not the first to stub his toe on this bridge, since two other professors confidently (but erroneously) predicted a couple of years ago that such a structure would collapse by instability.

I must assume that Professor Ashton is aware that an H-20 loading may take the form of a distributed lane loading, which usually governs for such large spans. If so, it follows that a water loading is an excellent test, particularly since full-span loading governs the design of the rib, the critical component of the structure. It appears therefore that Professor Ashton is not familiar with the structural action of a Langer girder (or slender-rib tied arch) wherein secondary rib moments are extremely small (see Garrelt's paper, ASCE Trans., 1943). Professor Ashton has also conveniently overlooked the immediately following paragraph of our paper which indicated that an extensive series of (truck) test loadings were undertaken, to check the tie and other members governed by part-span loads.

The comments concerning wide roadways are not germane. This design conception originally was presented as an ideal solution for a two-lane bridge, and the Rio Blanco design stretched the width to three lanes. No claim has been advanced for widths beyond this.

Any remarks concerning economy are not valid unless substantiated by comparable designs for a given structure. The writer has made such com-

(*Continued on page 14*)



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by
R. G. THIBAUT
Service Manager,
The Thew Shovel Co.

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All manufacturers want their machines to get the best of care — want them to serve the contractor well and safely throughout a long and trouble-free life. To that end they publish operator's manuals with preventive maintenance, adjustment and lubrication instructions and proper operation procedures. However, no one but the operator, or the master mechanic, can see that these programs are carried out completely.

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It is a standing joke that women do not read instructions on new equipment they buy such as washing machines, cleaners, etc. Service engineers can testify that some operators apparently never read their service manuals either — or if they do, they don't remember what they read — or don't care.

It all comes back to how much pride the operator has — in his job, in his machine, and in himself. That is what really gets the most out of a piece of equipment — at lowest operating cost.

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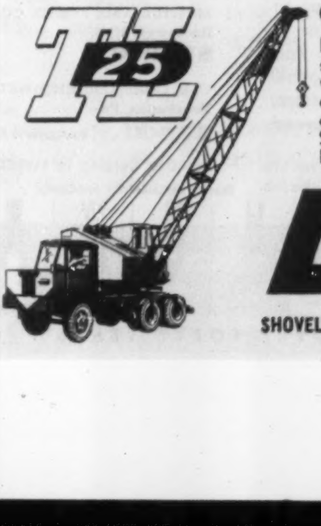

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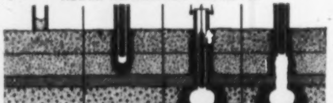

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READER COMMENT

parisons, and the published results (in "Welded Highway Bridge Design," by Jas. F. Lincoln Arc Welding Foundation) speak for themselves. A major advantage of this bridge—that it is a space frame—has not been considered at all by the discusser in connection with resulting economies.

Professor Ashton's reaction to the appearance of this bridge is appreciated, and is in line with the views of a distinguished group of architects who recently have bestowed a great honor on the Rio Blanco Bridge.

Thomas C. Kavanaugh, *Chairman*
Department of Civil Engineering
N. Y. University

Quiet job

Sir: We note with interest your three photograph "Quiet!" sign sequence at the bottom of pages 36 and 37 in the March 18, 1954, issue of Engineering News-Record.

Your readers may be interested to know that they were taken at the site of the 19-story office building under construction at 555 Fifth Avenue, New York, N. Y., for which Psaty & Fuhrman, Inc. is general contractor.

Herbert I. Tyson
Administrative Engineer

CALENDAR

Construction conference on "Walls, floors and roofs," Cleveland Engineering Society Building, Cleveland, Ohio, April 12.

American Institute of Steel Construction, national engineering conference, Hotel Schroeder, Milwaukee, Wis., April 13-14.

Society for Experimental Stress Analysis, Netherlands Plaza Hotel, Cincinnati, Ohio, April 14-16.

Annual Road School, April 19-22; and Conference on Road and Street Traffic Control, April 22-23, Purdue University, Lafayette, Ind.

Conference on instrumentation in water, sewage and industrial waste treatment, Manhattan College, New York City, April 20.

Western Concrete Pipe Assn., Fresno Hacienda, Fresno, Calif., April 21-23.

Southern Industrial Wastes Conference, Hotel Shamrock, Houston, Tex., April 21-23.

American Society of Civil Engineers, Pacific Northwest Conference, Davenport Hotel, Spokane, Wash., April 22-24.

Air Pollution Control Association, Patten Hotel, Chattanooga, Tenn., May 3-6.

Wire Reinforcement Institute, spring meeting Boca Raton Hotel, Boca Raton, Fla., May 3.

Concrete Reinforcing Steel Institute, Boca Raton Hotel, Boca Raton, Fla., May 3-8.

7th World Health Assembly, World Health Organization, Geneva, Switzerland, May 4.

Annual meeting, Steel Joist Institute, Boca Raton Club, Boca Raton, Fla., May 4.

Highway Transportation Congress, Hotel Mayflower, Washington, D. C., May 4-6.

American Welding Society, national technical meeting, Hotel Statler, Buffalo, N. Y., May 4-7.

Forest Products Research Society, national meeting, Grand Rapids, Mich., May 5-7.

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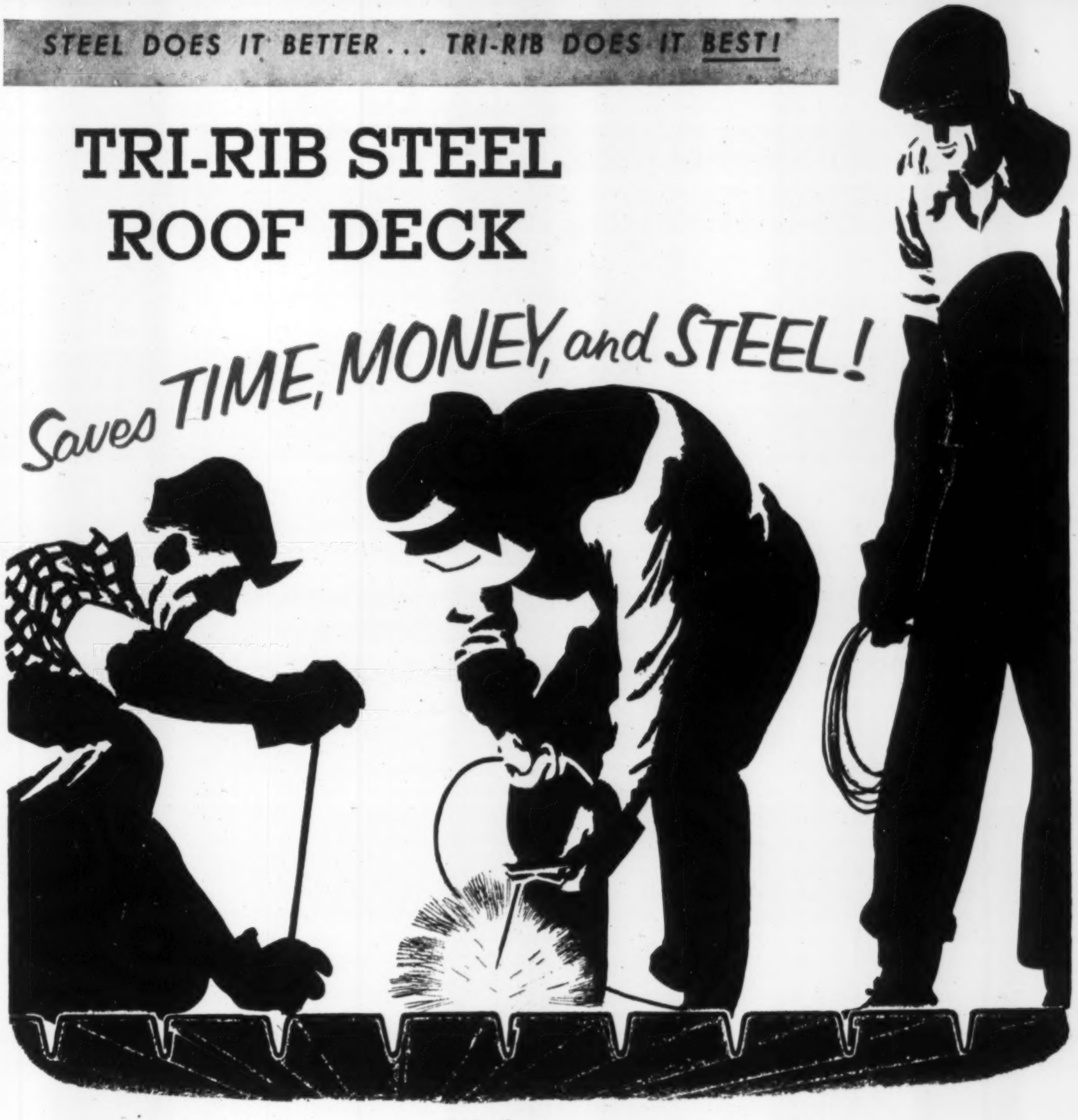

Tri-Rib *does* save you *time*. It is grooved for fast, easy attachment. Saves you *money*, too, because it is lighter, yet stronger. And because it *is* lighter you can use lighter supporting structure. Tri-Rib saves you *steel* because it reduces the dead load, permits use of fewer columns, shallower footings, no sub-purlins. For full details see our catalog in Sweet's, or write us.

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FINISH: Zinc chromate iron oxide primer coat baked on after fabrication.

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DEAD WEIGHT: 8 to 10 lbs. per sq. ft. when insulated with built-up roofing.

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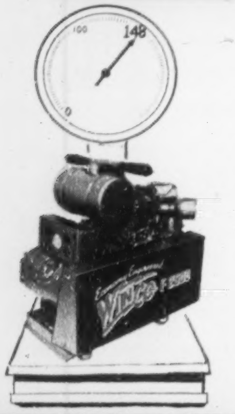

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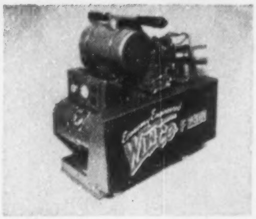

2500 watts starting capacity and continuous output*—16.8 watts per pound with Wisconsin AKN.
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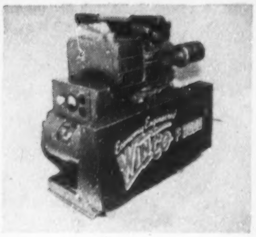

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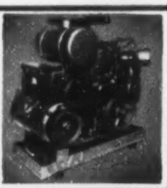

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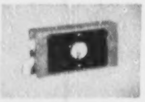

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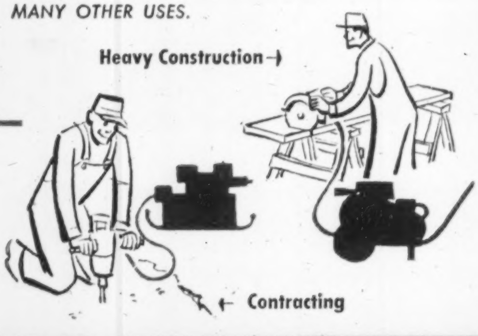

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APRIL 8, 1954

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THE CONSTRUCTION WEEK

ACQUISITION PLANS?—It will be worth watching actions of the State of Washington for the next six months, as its officials eye the heavy holdings of the federal government in the form of power and irrigation dams.

Key to the state's interest: "Power revenues of Grand Coulee and Chief Joseph could do a lot for the state."

FREE BRIDGE NOT REQUIRED—That federal court decision over a free bridge vs. toll bridge is worth posting in a prominent place by public authorities.

The decision: The Delaware River Joint Toll Bridge Commission doesn't have to maintain an existing free bridge over the Delaware River between Portland, Pa., and Bethel, N. J., even though it has built three toll structures in the vicinity.

The situation: The commission plans to tear down an existing bridge connecting the two towns (one of its toll structures is less than two miles away). Residents claimed the existing bridge was "theirs," that loss of it would damage their businesses.

Said the court: The bridge was built with state funds, isn't any more the property of the locals than that of all residents of the two states; loss of business through loss of the free bridge puts property owners in the same class as a business bypassed by rerouting of a main highway—a calculated risk of the owner.

THE WEATHER—Here's the U. S. Weather Bureau's 30-day outlook to cover the month of April (to be read with tables published in ENR March 25, p. 48):

> Temperatures will average below seasonal normals over the Great Lakes, Northern Plains and most states west of the Continental Divide. Above normal temperatures are expected south of a line extending from Maryland to the Texas Panhandle. Near normal elsewhere.
>
> Precipitation outlook is for above-normal over the Northern Plains and Great Lakes regions and in the Far West. Subnormal amounts for the South, from Texas eastward. Other areas will be near normal.

BREAK ON TAXES?—U. S. engineering and contracting firms doing business abroad get a decided break if Congress approves one of the many proposed changes in U. S. income tax laws.

The break: 14% of net income earned abroad would be exempted from federal income taxes (to allow U. S. firms to compete with foreign outfits which may pay lower national taxes). Secondary effect might be to permit U. S. firms to get away without organizing separate foreign subsidiaries.

Field assembly of Monotube piles is quickly and easily accomplished using a "come-along" with two cable chokers.

Driven pile being cut off at proper height. Use of cut-off sections as extensions minimizes waste.

Welding extension to driven base section of pile on right while driving of pile on left continues. No lost time.

How **MONOTUBE PILES** meet the need for **VARIATION IN DRIVEN LENGTHS**

UNLESS you've already had first-hand experience with Monotube piles, you might be amazed at how their "easy field extendibility" pays off. Engineers and contractors are taking advantage of it on job after job . . .

Many contractors set up a simple welding rack to do their own field assembly right on the job, thereby furnishing the driver with one-piece piles to approximate required length.

Another procedure is to weld on extensions as driving progresses. While one pile is being extended, driving continues on an adjacent pile. No lost time.

Such practices are completely practical with Monotubes because they combine light weight and easy handling with cold-rolled high strength. Weld-splicing goes easy and fast. No difficult welding operations.

Get the facts on *all* cost-important Monotube features. Write to The Union Metal Manufacturing Co., Canton 5, Ohio.

Monotube Foundation Piles **UNION METAL**

WASHINGTON OBSERVER

The construction to support a 137-wing Air Force is taking understandable dimensions. The Budget Bureau-Defense Department request to Congress for new authorized projects, plus reprogramming of previous authorizations, add up to a program that will require about $1 billion in new appropriations. The final money total won't be added up until about May 1, when the new appropriation bill will go to Congress.

But here is what is significant: new air strips, base installations, barracks, and maintenance facilities are being asked. The Air Force gets more than $700 million of new and reprogrammed authority, plus $200 million overseas, while Army and Navy authorizations total about $450 million.

What's happening is a complete re-programming of military needs for a striking Air Force of 137 wings. A part of the new authority will go for interceptor air installations.

•

Spending in fiscal 1955, beginning July 1, will continue at almost today's rate of around $1.5 billion-$2 billion. But the new program from the Budget Bureau will continue that rate beyond fiscal 1955.

Biggest non-Air Force program will be in the Army's continental defense—setting up of guided ground to air missile bases around metropolitan areas. Navy Air will get some new programming.

•

A $4-billion to $5-billion increase in all public works over the next several years is considered a "must" by Eisenhower's advisers. That increase (over last year's $11 billion) is attainable, they say, and will contribute to expansion in other activities—sale of cars, overland transport, etc.

So watch for a continued pushing of "efficient" and "feasible" projects, in school construction, hospitals, government buildings, etc. The recently published hearings of the congressional Joint Committee on the Economic Report have a memorandum from the Budget Bureau on how big a backlog—over $3 billion—of construction funds is available for immediate go-ahead. And the new welfare program now being considered in Congress has more incentive, particularly in hospital construction.

The Interior appropriations bill now before the House has money for new starts (see page 24).

The new Air Force academy just authorized is another sizable job.

•

The bid shopping bill is all but dead in Congress. The House committee, which schedules work for the entire House, has turned down the proposal—to require prime contractors to name their subcontractors in their bids on government work. It would now take a petition signed by 218 House members to shake the bill loose—and that's all but impossible.

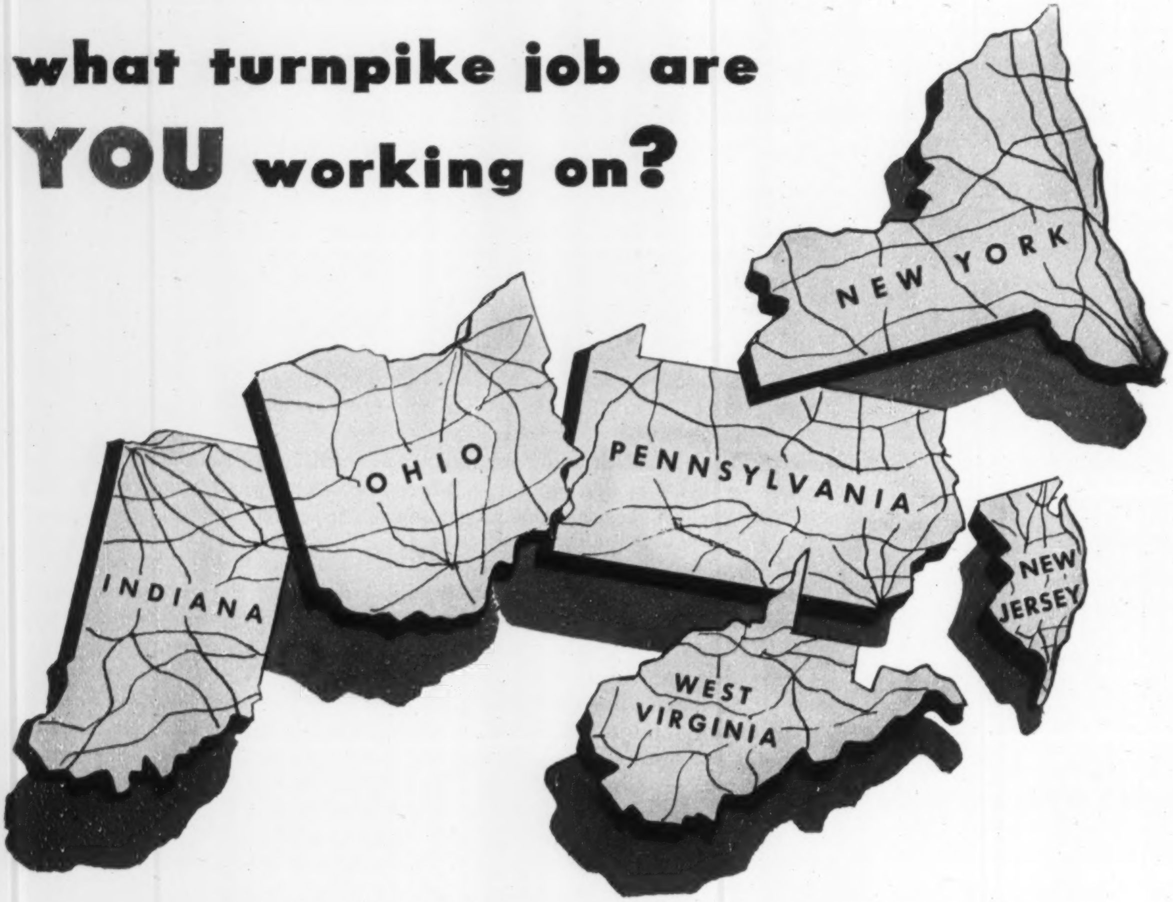
•

Final congressional action on the Wunderlich Bill is about due. It has already passed the Senate, was due for House approval this week. Once differences are ironed out between the two versions, the measure will go to the White House. The bill would give contractors whose work has been called off by government contracting officers a court of review of money claims.

•

Supreme Court arguments on labor union violence are now on, and the final decision will be crucial in future labor disputes. It's the case of the United Construction Workers and the Laburnum Construction Co. of Virginia. The company claims it was damaged by union organizing activity, and argues that "common law" should grant it relief, regardless of past decisions that such actions should come under the Taft-Hartley law. The Virginia supreme court had said the company had redress in state courts.

what turnpike job are **YOU** working on?



There's a great variance in specifications established for the Turnpike projects to be built this year. All, however, represent the most advanced thinking of the country's top-flight highway engineers.

BUTLER has kept pace with the requirements involved. You can have a BUTLER Roadbuilders Plant designed precisely to meet every innovation and every exacting specification. Moreover, your BUTLER Plants will provide great economies in faster, fool-proof automatic batching. They're as modern as the highways they help to build. *For a full description of all the features BUTLER provides — write* for Bulletin 205. Do it today — as a first step in getting an *extra* profit from your Turnpike job.

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APRIL 8, 1954

ENGINEERING NEWS-RECORD

Low bid prices stretch public works dollar

Intense competition is driving bidding well below engineer estimates as both contractors and labor tighten their belts

An ENR staff report

Extremely low first-quarter bid prices already have saved federal, state and local governments a tidy sum out of their '54 public works funds, giving them millions of dollars to put toward additional construction.

The tip-off that something interesting to both buyers and sellers of construction has been going on was contained in ENGINEERING NEWS-RECORD's first-quarter summary a week ago (ENR April 1, p. 21). The reports of dropping dollar volume for the first three months of 1954 hinted at an increase in physical volume that might bring the year to an equal or greater status as compared with other boom years for the industry, in terms of actual work. ENR called on its network of correspondents and news bureaus to check—and found that the hint of more work for less money seems to be a fact.

Bids 10% to 15% below estimates have become commonplace on all types of public works in virtually every section of the country. And, in a surprising number of cases, contracts are being let 20% to 30% under estimates.

The trend toward lower bid prices which started last year thus is in full swing. It has gone hand in hand with a growing intensity of competition among contractors for new work, as reflected in a rising increase in the number of bidders per job and in an ever-narrowing spread between bids.

• Competition is the key—The scramble for new work—based on a determined effort to keep organizations intact and equipment busy pending greater job opportunities in the spring months—is the key factor in the low bid prices. There has been no assist from lower labor and material costs—though at least both have stabilized to a marked degree.

Competition has forced both contractors and labor to tighten their belts in an attempt to weather the current period of readjustment. Foremost in its effect on bid prices has been the imponderable but readily apparent cutting of profit margins and overhead allowances. This form of belt tightening is implicit on each such typical example of sharp bidding as occurred recently at an airbase where 10 of 12 bids on a hospital job were under the estimate, with the low bid 16% under.

Another factor that appears to be contributing to lower bid prices is the return of more normal conditions of materials and manpower supply. This has enabled contractors to bid with more assurance and thereby cut their contingency margin for uncertainties in labor and supplies.

• Seasonal influence considered—Perhaps most important from the labor angle is that with more workers available employers are exercising greater selectivity in hiring. This, coupled with a natural concern over the job outlook, is resulting in concrete evidence of higher labor productivity. Sources on the Pacific Coast think labor efficiency may have risen as much as 10% over the last year. And, not without some significance is a whimsical note from Chicago that business office "coffee breaks"—are on the way out.

It must be conceded, of course, that the seasonal factor has helped to exaggerate the startling spread between current bid prices and engineering estimates. Many contractors admittedly have been taking jobs at cost or at risk simply to keep going until the spring lettings. This is particularly true of highway work, where below-estimate bids are most prevalent.

• Highways—An expected 20% increase in regular state highway expenditures this year plus a bumper crop of toll road projects slated to go under contract in the fall undoubtedly will ease the pressure on highway bidding. Nevertheless, the decline in federal work plus other adverse conditions will keep the number of bid seekers higher than usual.

On the basis of the ENR spot survey, here is how bidding on highway jobs has been going in various parts of

(Continued on page 22)

Manhattan's biggest since Empire State

Despite growing interest in suburban locations for corporate offices (see page 45), excavation got under way last week for the foundations of the largest office building to be undertaken in New York City since the Empire State Building was built a quarter century ago. The new structure will be 42 stories high and over half of its 1,300,000 sq ft of rentable floor space will be occupied by the Socony Vacuum Co.

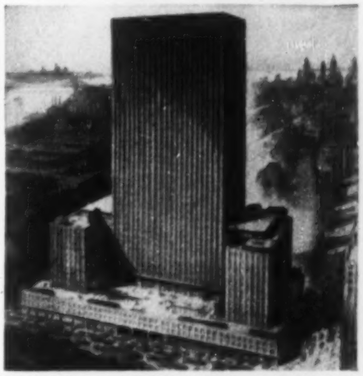
The building will be one of the few commercial structures in New York to feature operatorless elevators—35 in highspeed express and local cars.

To occupy a two-acre block bounded by Lexington and Third avenues, 41st and 42nd streets, the air-conditioned structure will cost $45 million.

With completion scheduled for late 1956, excavation work will be on two shifts and steel erection will start in the fall.

Building frontage on 42nd and 41st streets is 420 ft and 200 ft on Lexington and Third avenues.

Exterior treatment of the upper floors of the building will be glazed brick with white metal trim, while the street-level building entrance and store fronts will be of granite, marble, metal, and glass. Moving stairs will connect the terrazo and marble lobby to a concourse one level below the street with direct access to subways and Grand Central Station.



RISING 42 STORIES, Socony-Vacuum building will occupy two-acre site.

Harrison & Abramovitz are architects with John B. Peterkin as associate architect; Turner Construction Co. is the builder; Edwards & Hjorth are structural engineers, Jaros Baum & Bolles, mechanical engineers, and Edward E. Ashley, electrical engineer, all of New York.

. . . Low bid prices

the country over the last few months:

New York: April 1 lettings, involving 20 contracts with estimates totaling $15.1 million, drew 100 bidders, whose bids were below estimates by 3.4% up 26.8% for an average of 17.2%. Contracts totaled $12.5 million, putting the state $2.6 million to the good. Twelve bidders sought the largest of the jobs estimated at $7.2 million, which went under contract for $5.4 million, saving the state 25%.

Georgia: Early this month 29 bidders went after a job estimated at $98,000, with the contract going for $76,000. Lettings in November, '53, were 12.9% under estimates; in December, 11.2%; in February, 13.2% and in March, 11.4%.

California: Recent bids in the bay area added up to $32.3 million against a total estimated cost of $37.9 million, 15% saving in highway construction funds. The Division of Highways cost index for the first quarter stands at 199.4, Under the fourth quarter of '53 by 8%. This is the first time the index has dipped under 200 since the fourth quarter of 1950.

Maryland: Number of bidders has doubled over a year ago. Out-of-state contractors have been getting better than 50% of the contracts. The state's $568-million, 12-year road program has attracted bidders from as far south as Georgia and as far north as Massachusetts.

Ohio: March 31 lettings were 11.2% under engineer estimates—bids of $4.9 million vs. estimates of $5.5 million. However, largest of the projects estimated at $1.25 million went under contract at a figure 18% less.

Minnesota: Bids ran from 13% to 20% below estimates on nine road jobs awarded this month. Indicative of the competition—accentuated by the fact that weather was favorable for road work into late last fall and hastened project completions—was a 9.4-mile gravel base and bituminous surface stretch on which 10 of 11 bidders were under the estimate and a 6-mile grading job on which nine of 16 were under.

Oklahoma: Jobs are drawing from five to 20 bidders with low bids running from 6% to 20% under estimates —which, incidentally, are now in process of being lowered.

Tennessee: On March 26 lettings low bids ran about 12% below estimates, with double the number of bidders.

• Other public works—The bidding trend on public buildings, sewer and water facilities and miscellaneous projects is not as well marked as in highway work. But, as the following examples will show, there's plenty of evidence of deviation from normal bidding.

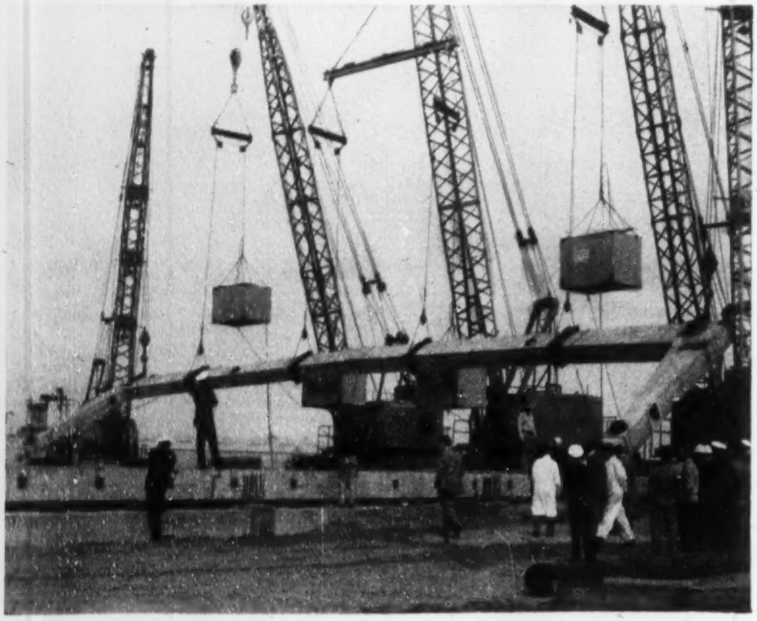
Chicago: Lettings on four of nine programmed parking garages have attracted up to 11 bidders. Low bid on one of the million-dollar structures was 22% below the estimate—only $8,000 away from the second lowest bidder.

San Francisco: East Bay Municipal Utility District awarded five contracts for water main installations between November and March at 8%, 17%, 43%, 24% and 46% under estimates. There were 10 and 12 bidders on the February and March lettings, compared to seven or eight on the earlier ones. Aside from the seasonal factor, it was noted that a number of new and untried firms participated in the bidding.

Fort Worth: A high school job with a cost estimate of $750,000 drew 31 bidders with low bid under by 14%. Low bid on Nutt Dam was 28% below the $420,000 engineering estimate. Twenty-three firms bid on a 30-in. water line job at Fort Hood, the low bid of $303,900 being 30% under the estimate.

• Federal picture—Army Engineers report receiving 20 to 30 bids on the average job now as compared with five or six a year ago. A comparatively small barracks job at Bolling Air Force Base with an estimate of $275,000 recently attracted 25 bidders, including a number of large firms. Low bidder was 18% below the estimate.

A Bureau of Reclamation contract for completion of power plant and switchyard at Folsom Dam on the American River near Sacramento was taken at a bid price 7% below the engineering estimate of $915,459.



Rigid frame gets a six-point balanced lift

To prevent unbalanced erection stresses in two 100-ft-long prestressed concrete rigid frames for a Naval laboratory at Port Hueneme, Calif., five 50-ton crawler cranes, positioned for a six-point pickup, were used for hoisting.

Three of the cranes, hoisting at four points along the top of the frame, were rigged with cross-bars and double-sheave slings having water-filled steel pontoon cells as counterbalances. Two other cranes raised directly at the corners. If one of the three cranes hoisting the top of the frame lifted its sling faster than the others, the 2,000-gal pontoon rather than the rigid frame would rise. At the corners of the frame, the two other cranes simply steadied the erection work, and if one raised a corner faster than the other, a proportional adjustment in the elevation of the pontoons would result.

The frames are part of a new laboratory for the U. S. Naval Civil Engineering Research and Evaluation Branch. All elements of the building are heavily instrumented to indicate stresses under erection as well as live and dead load. Five other frames in the building consist of prestressed knees supporting 60-ft-long prestressed girders. Arsham Amerikian of the Navy's Bureau of Yards and Docks designed the structure. Haddock Engineers, Ltd., Los Angeles is the general contractor and C. D. Wailes Corp. of Sun Valley, Calif., has the contract for precasting, prestressing and erecting the framing.

Runway project will require huge fill

Earthmovers will place 3,300,000 cu yd of fill to build a "ramp" for a 4,231-ft extension of the main runway at Offutt Air Force Base, Strategic Air Command headquarters 10 mi south of Omaha, Neb. Bids will be opened May 18.

The huge fill is necessary because the airbase is located on the bench above the Missouri River flood plain. In the direction of the extension, the ground drops steeply from the end of the existing runway to the river. The projected embankment will be 35 ft high where it joins the existing runway and then slope downward at a 1% grade so that the far end is even with ground level. Top width of the fill will be 1,800 ft throughout.

Five miles of the Burlington Railroad's Omaha-Chicago main line will have to be shifted in a relocation operation that will require construction of a new bridge.

The runway will be paved with a concrete strip 300 ft wide and 14 in. thick in its deepest section. A 75-ft-wide taxi strip will provide access to the runway. Paving will take 78,000 cu yd of concrete.

Aside from calling for a sloped embankment to save on fill, plans have been set up with alternates in an effort to hold down earthmoving costs. Contractors can use either land or hydraulic earthmoving equipment. If the latter is employed, there are two possibilities. A dredge could be set up near the project site or it could operate on the Missouri River two miles away, stringing its spoil pipe across the intervening bottom land to bring the earth to the job.

The extension by providing a 10,000-ft main runway will enable the base to accommodate the largest of the SAC's jet and propeller aircraft. The job is under the Omaha district, Army Engineers, with Albert Bux as project manager.

Timber group sets standards on design and fabrication

A code of standards for the timber construction industry was approved at the second annual meeting of the American Institute of Timber Construction last week in New Orleans.

Design, fabrication, erection and practices are covered by the code which is the work of the AITC standards committee, headed by Frank Benzon, an institute board member and president of Timber Structures of California, Inc., Richmond, Calif.

The two-year-old AITC made the code its first big objective. This was because each member company has operated under its own set of standards and while most of these are considered good, their multiplicity gave rise to a good deal of confusion.

Max C. Hanisch, new head of the institute and president of Unit Structures, Inc., Peshtigo, Wis., said that "the demand for these standards has been expedited by the wide accceptance of glued laminated timber, the use of which is rapidly growing, and the greater popularity of engineered timber construction generally."

The AITC is the first organization devoted wholly to timber construction. Its three classes of membership are: (1) active-timber fabricators and laminators; (2) associate-lumber, glue, connectors, treatment and allied groups; and (3) professional-engineers and architects.

The AITC Code of Standards is now being printed and will be ready for distribution soon.

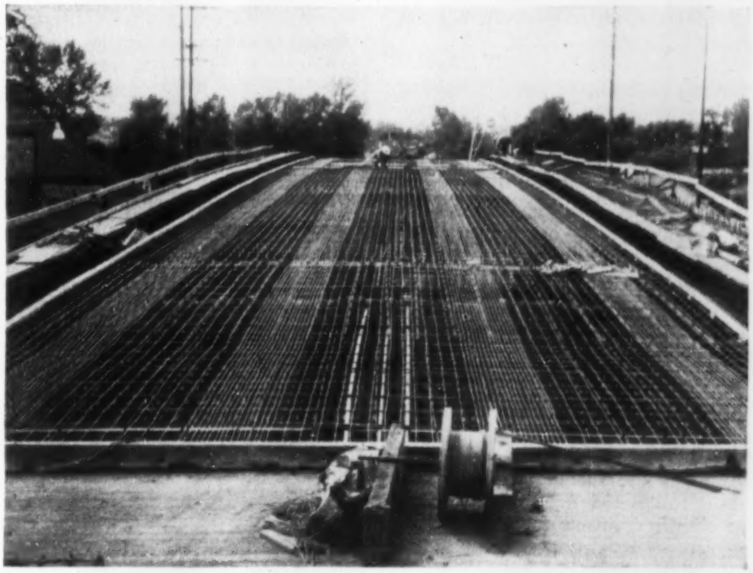
Seven-mile approaches planned for toll bridge

What may become Chicago's first toll facility was proposed last week by Public Works Commissioner Virgil E. Gunlock. The $50-million plan, approved by Chicago's Mayor Kennelly, will bring a timely solution to the imminent problem of traffic dumped by Indiana's east-west toll highway (ENR Feb. 11, p. 24) at the Windy City terminal—106th St. and Indianapolis Blvd.

The seven miles of toll road in the plan will be considered as approaches to a proposed high-level fixed bridge over the Calumet River, since the project will be developed under a statutory amendment permitting Illinois cities to build and operate toll bridges. Although the plan may call for a court test of the recently enacted amendment, legal advisors believe the proposal is valid.

Picking up Indiana toll traffic at the state line, the toll road would carry it to 66th and State St. and then on to the Loop area over the proposed South route of the city's comprehensive expressway plan (ENR Dec. 31, 1953 p. 38). Motorists could also reach the heart of Chicago by turning off on Stony Island Ave. and continuing north through Jackson Park to South Lake Shore Drive.

Tolls wouldn't be high; probably starting at 25 cents for a passenger car. Two investment banking firms reportedly will undertake preliminary feasibility, anticipated revenue, and cost studies.



Electric heating cables prevent ice on bridge

To reduce dangers of skidding on ice or snow, electric heating cable was fastened to reinforcing steel and encased in the concrete deck so that it lies 1½ in. below the surface of the roadway on the Center Street Bridge in Salem, Ore. Designed to hold temperatures to a minimum of 30 deg. F., the cables are spaced at intervals of 1½ in. in the area of vehicle wheel tracks and at about 5-in. centers elsewhere. Heat is controlled by bulb thermostats and the connected load is 250 kw supplied at 240 v. A similar installation in Salem uses a welded mesh laid in an asphalt pavement for the Marian Street Bridge. The mesh is a 2x2-in. No. 14 gage laid in strips and brazed to a flat bar which transmits 250 kw at 50 v to melt snow. W. R. Grasle Co., Portland, Ore., was contractor for both installations.

Interior's construction money slashed

House committee whittles $32.5 million from budget request; but retains three of the four new starts urged by President

Construction funds for reclamation and other activities of the Interior Department were sharply cut by the House Appropriations Committee in the fiscal 1955 money bill reported last week.

Overall cuts on the President's Interior budget request amounted to $59 million. The budget estimate totaled $422 million, and the committee recommended $363 million. Construction cuts accounted for more than half of the committee reduction—nearly $32.5 million in all.

Part of the decrease is obscured in the committee report by reshuffling budget estimates submitted in January. For example, the committee shifted $2 million from general investigations in the Missouri River Basin into a construction category for the watershed. A similar transfer of $2.24 million approved for other departmental agencies in the basin also was made to a construction category.

The original budget request for reclamation construction was nearly $122 million. Allowing for the padding in the House bill, the actual total cut in this construction amounts to almost $12 million—almost 10%.

Congressman John Taber's Appropriations Committee thus is holding more rigidly to the economy line than the Administration. Even one of the four so-called new reclamation starts proposed in the President's budget message (ENR, Jan. 28, p. 21-22) was wiped out by the committee. The House group killed the item for enlargement of the spillway of Alamagordo Dam.

The three new starts that did get money are the badly needed Middle Rio Grande project and the Minidoka and Yuma projects.

The Middle Rio Grande project near Albuquerque, N. M., will be a river control and regulation project whose banks, channels and levees ultimately will cost $29 million. The Minidoka pumping project on the Snake River, in Idaho, will increase irrigable land at a cost of about $2.5 million. The Yuma new start is a $500,000 auxiliary irrigation installation of the Yuma project on the Colorado River.

A few going projects were alloted more money than requested as a means of speeding construction to save money or attain the revenue-producing stage more quickly.

The Kansas River Basin program is rolling along on schedule despite controversies over the Army Engineers flood control program for the same basin. Kerwin and Webster dams on the Kansas River headwaters are designed primarily as irrigation projects with minor flood control benefit; the former receiving the full budget request in the House bill, the latter was cut almost $2 million.

Committee action probably will be sustained by the House, as it was on the Army civil functions bill. But the Senate will restore a good part of what the House committee removed and may add even more for some projects.

Additional money for reclamation construction also may be voted by the House on the basis of a supplemental appropriation request for about $2 million that the President submitted last week. The added money would go for new works or betterments on five projects; Sargent unit, Neb., $1 million; Helena Valley unit, Mont., $250,000; Heart Butte unit, N. D., $300,000; Bluff unit, Wyo., $157,000; Humboldt project, Nev., $118,000.

Interior's new construction money for fiscal '55

	Budget Request	House Bill
Bureau of Reclamation	$121,838,000	$114,479,700*
National Park Service	8,600,000	8,056,099
Office of Territories		
Alaska public works	5,000,000	5,000,000
Alaska roads	9,940,000	7,000,000
Alaska railroad	11,994,000	7,494,000
Bonneville Power Administration	30,200,000	18,915,000
Bureau of Indian Affairs	10,336,000	7,673,000
Bureau of Land Management	3,000,000	2,000,000

*Includes $2,000,000 transferred in bill from item for general investigations.

Reclamation's new starts and major projects

(Includes some carryover funds)

Project or unit	Budget	House bill
Eklutna project, Alaska	$4,612,000	$1,162,000
Gila project, Arizona	2,700,000	2,700,000
Yuma project, auxiliary division, Arizona	100,000	100,000
Boulder Canyon project, Arizona-Nevada	1,206,000	1,206,000
Davis Dam project, Arizona-Nevada	2,961,000	1,400,000
Cachuma project, California	3,300,000	6,000,000
Central Valley project, California	23,493,000	21,000,000
Solano project, California	8,040,000	6,000,000
Colorado-Big Thompson project, Colorado	750,000	1,250,000
Minidoka project, North Side Pumping Division, Idaho	1,925,000	1,925,000
Palisades project, Idaho	12,200,000	13,000,000
Fort Peck project, Montana-North Dakota	545,000	250,000
Carlsbad project, Alamogordo Dam spillway enlargement, New Mexico	300,000	
Middle Rio Grande project, New Mexico	1,221,000	1,721,000
Weber Basin project, Utah	7,900,000	6,000,000
Columbia Basin project, Washington	8,818,000	11,818,000
Yakima project, Kennewick and Roza, Washington	3,320,000	3,320,000
Eden project, Wyoming	625,000	800,000
Kendrick project, Wyoming	780,000	780,000
Riverton project, Wyoming	479,000	400,000
Missouri River Basin, Bostwick Division, Nebraska-Kansas	1,360,000	2,000,000
Missouri River Basin, Frenchman-Cambridge Division, Nebraska	1,000,000	1,000,000
Missouri River Basin, Kirwin unit, Kansas	3,160,000	3,160,000
Missouri River Basin, Lower Marias unit, Montana	6,100,000	6,000,000
Missouri River Basin, Missouri diversion unit, Montana	605,000	
Missouri River Basin, Rapid Valley Unit, South Dakota	2,433,000	2,000,000
Missouri River Basin, Transmission Division, various	13,005,000	11,000,000
Missouri River Basin, Webster unit, Kansas	5,980,000	4,000,000
Missouri River Basin, other departmental agencies	2,240,000	2,240,000

Public housing gets rough treatment from House, but Senate may force compromise

Public housing took a political beating last week as the House passed the 1954 Omnibus Housing Measure. Administration leaders can now look only to the Senate to save the President's program calling for 140,000 public housing units in four years.

Democrats tried to include all of Eisenhower's request—35,000 units a year for four years—in the Housing Bill. Republicans seemed willing to approve one year's quota, but they could not muster the votes to go the whole way with the Democrats, and the Democrats refused to accept any halfway compromise. As a result, public housing lost out on all counts.

• **Contracted units okayed**—Earlier, legislative limits on public housing had been eliminated from the Independent Offices Appropriations bills as passed by the House. This action apparently cleared the way for the Public Housing Administration to go ahead with construction next year of all units which have been definitely committed under contracts with local housing authorities. There are about 35,000 such units eligible for starting in fiscal 1955.

However, additional authorizing legislation is needed before PHA can make further commitments for local public housing projects. The Senate is counted upon to include this authorization in its version of the Housing Bill.

• **Set-back on interest rates**—The Administration suffered some other defeats in the Housing Bill passed by the House. Among these House-defeated items is the granting of authority to the President to raise the ceiling on FHA interest rates to 2½% above the current yield on long-term government bonds. The House refused this discretionary power but voted the President authority to extend mortgage terms to 30 years, to lower down payment requirements, and to increase the maximum amount of insured loans (ENR April 1, p. 27).

It likewise approved equal FHA mortgage terms for existing houses, giving them the same benefits as new homes. And the House endorsed, also, higher limits and longer repayment periods for modernization and improvement loans.

But the House rejected the proposal to give the President authority over GI home loans. The congressmen went along with veterans groups that favor keeping control of interest rates and terms on VA-guaranteed loans in the hands of the administrator of veterans' affairs—the head of the Veterans Administration.

• **Approve revamping Fanny Mae**—On the government secondary mortgage market the House gave its approval to Administration plans for revamping the Federal National Mortgage Assn. (Fanny Mae). And it endorsed a House amendment for a voluntary mortgage credit committee—to be made up of builders and bankers who would try to channel funds into areas where housing money is in short supply.

For urban renewal, the House went the whole way in endorsing Administration proposals for insuring loans in deteriorated areas and otherwise giving aid to the rebuilding and up-grading of cities. It approved insurance of small down payment, 40-year loans for displaced low-income families and set the maximum value for such properties at $7,600, or $8,600 in high-cost areas.

Industrial wastes or gasoline leakage seen as primary causes of sewer blast

Industrial wastes of a flammable nature, or gasoline leakage from filling stations, or both, have been indicated as primary causes in last year's Cleveland sewer blast (ENR Sept. 24, 1953, p. 24) which tore up about a mile of street, killing one person, injuring 64 others, and causing damage estimated as high as $6 million.

The findings are the result of an investigation made by three Case Institute of Technology professors, George E. Barnes, George W. Blum, and Leon W. Weinberger. The findings were submitted in an 84-page report to Cuyahoga County and the Cleveland and Lakewood, Ohio.

At the time of the explosion, sewer gas as well as industrial wastes had been held by some as a possible cause of the explosion. Investigators, however, could not locate the point of the origin in the sewer or exact cause of the explosion.

The report cited these factors:

(1) Petroleum seeps underground in the vicinity from the native shale which underlies the area.

(2) The entire district is over an old gas field and leakage from the abandoned wells has long caused an odor or nuisance.

(3) Industrial wastes of a potentially hazardous nature enter the sewage flow every day from the 194 industries or commercial establishments in the district which use flammables.

(4) There was the possibility of accidental spillage or leakage of flammables not normally found in the sewers.

(5) Utilities (sewer, gas, etc.,) also were possible contribution to the explosion.

The report recommended that measures be taken to eliminate nuisances and hazards from the old gas wells and that the resources of the city be organized to improve sewage and industrial waste disposal systems.

Midwesterners warned on water supply plight

The industrial Midwest's complacency in the face of frightening increases in water consumption, periods of drought, and widespread water pollution is in sharp contrast to an almost religious respect for water in the Southwest and West. It is time for the Midwest to take stock of its water resources and look to the future (see also p. 156).

This warning was sounded last weekend by B. A. Polle, director of sanitary engineering in Indiana's State Board of Health, as he addressed a sanitary engineering workshop in Cincinnati, sponsored by the local section of the American Society of Civil Engineers.

Mr. Poole warned of growing agricultural interest in supplemental irrigation of Midwest farmlands. He said farmers could irrigate crops at a comparatively low cost for lightweight pipe and pumps, leaving cities to wake up and find some of the already scarce supplies diverted before reaching them.

(Ohio's Gov. Frank J. Lausche announced last week he will organize an advisory committee May 4 in his office "to awaken the people of Ohio to the gravity of the water supply problem.")

Toll road juncture picked

A toll road link-up point on the Oklahoma-Kansas border has been agreed to by the turnpike authorities of the two states. The projected $140-million, 234-mile Kansas toll road (ENR March 25, p. 26) will be routed to a point three miles east of Hunnewell, Kan., and about 10 miles north of Braman, Okla. to connect with one of three planned extensions of Oklahoma's Turner Turnpike (ENR Jan. 7, p. 24).

Army Engineers decry precarious state of Ohio River navigation facilities

Navigation works on the Ohio River have reached an appalling state of deterioration and obsolescence that could cause a serious disruption of commerce at any time, according to a recent appraisal of the waterway's modernization needs by Maj. Gen. Samual D. Sturgis, Chief of Army Engineers.

In an address before the Ohio Society of Professional Engineers, Gen. Sturgis declared: "I am not exaggerating when I say that the 40-year-old Lock No. 7, just below Pittsburgh, can collapse any day." He said that the lock "has been resisting the pressure of a sliding hillside for many months, with the lock wall leaning into the river some seven inches or more."

Summarizing the condition of Ohio River navigation facilities in general, he declared: "Some of the lock walls are eroded as much as two feet; sills are out of line and broken; piers have cracked through settling; dams have holes under them; and most of the locks would be too small for modern traffic even if they were perfect."

• Three priority projects—General Sturgis told his Ohio listeners that locks and dams No. 8 and 9 are in almost as bad condition as No. 7. He said that the authorized New Cumberland project would replace all three of the structures with a modern facility requiring about a third of the operating cost. But, noting that such a project takes about five years to build, he cautioned that the present locks easily might give way before the project is completed "even if we began work tomorrow."

The Army Engineers' ultimate goal is replacement of the present 46 locks and dams with 21 structures, including three that would be retained from the existing system. Though looked upon as a 20-year program, the Army considers three projects as particularly urgent and worthy of first priority. These are: New Cumberland, near Pittsburgh; Markland, near Cincinnati; and Greenup in the Ashland, Ky.–Huntington, W. Va., area. General Sturgis also attached priority importance to the proposed Hildebrand Dam on the Monongahela River, where he said navigation works were in a similar precarious position.

• Great Lakes modernization—Less alarming but equally significant were the comments by the Army Chief of Engineers on obsolescence of navigation works on the Great Lakes—some of which he noted were more than 100 years old, while many, including Cleveland harbor, were 50 to 70.

Speaking of the current Army Engineer survey of Great Lakes connecting channels, General Sturgis declared that additional information is needed before a firm estimate can be made of the cost of deepening those channels from 21 to 25 or 27 ft. So far, he said, it looks like a $100-million job.

He said that Great Lake channel and harbor improvements, many of which would be municipal and private enterprises, could well aggregate a billion dollars. He cited as an example of far-sighted planning the Port Authority of Milwaukee, which has set aside nearly two miles of lake front and 400 acres of land for harbor development and has provided for 12 major piers. Three have been built.

Toll road bridge link

The turnpike authorities of New Jersey and Pennsylvania have selected Howard, Needles, Tammen & Bergendoff of New York as consulting engineers for their projected $30-million Delaware River connection (ENR March 11, p. 22). George S. Richardson, Pittsburgh, Pa., was named bridge consultant for the project.

Jobs in the news

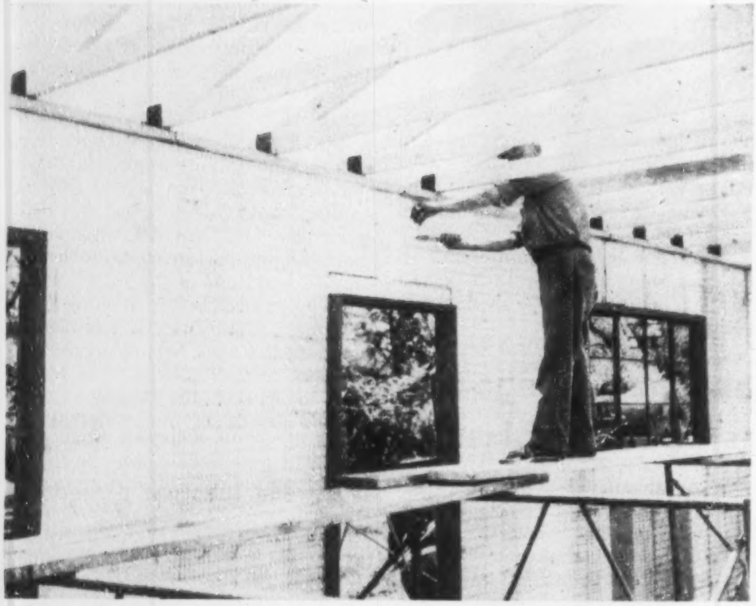
RUNWAYS—A $4-million contract for the construction of runways, taxiways and other work at the Air Force Base, Jacksonville, Ark., has been awarded to the Tecon Corp., Dallas, Tex., by the Corps of Engineers, Little Rock, Ark.

CANTILEVER HANGAR—Construction of a $3-million cantilever hangar at the Portsmouth Air Force Base, Portsmouth, N. H., has been awarded to the Arthur Venneri Co., Westfield, N. J., by the Corps of Engineers, Boston, Mass.

APARTMENT—Contract for the construction of a $5-million apartment in Philadelphia, Pa., has been awarded to Yellin & Son, Inc., Philadelphia. George S. Idell, Philadelphia, is architect.

BANK—A 14-story, $3-million bank will be built in Jackson, Miss., for the First National Bank by Southeastern Construction Co., Charlotte, N. C. Architects are N. W. Overstreet and James T. Canizaro of Jackson.

SHOPPING CENTER—A $6.5-million shopping center addition with stores and parking space will be constructed by Antoni Visconi, Cleveland, Ohio, with his own forces at Middlebury Heights, Ohio.



Foam plastic used in concrete sandwich walls

Walls of a laboratory in Marietta, Ohio, are made of a concrete sandwich with foam-plastic blocks forming the center insulation layer. To build the sandwich wall in place, door and window frames were set, plastic blocks erected, wire wesh fastened to the plastic, and concrete pneumatically applied to the inside and the outside of the plastic insulation layer. The laboratory is a one-story building, with about 1,000 sq ft of floor space, built by the Marietta Concrete Corp.

Pay showdown

Trades push for more pay; Ohio contractors adamant

That construction unions and contractors view this spring's recession through different eyes was evident in Ohio earlier this week.

There's been a lot of talk, nationwide, about contractors putting their feet down on demands for wage increases, and there's been as much talk about unions standing firm in their belief that there should be another round of pay increases this year.

But talk became strike in central Ohio. Five construction unions—about 3,500 workers—and the Columbus Building Trades Employers Assn.—about 50 contractors—refused to budge from their respective bargaining positions. The employers wanted to extend this year's contract for two years at no pay increase. The unions—teamsters, plasterers, cement masons, laborers and carpenters—had halved their 25-cents-an-hour requests, but that's as far as they would go.

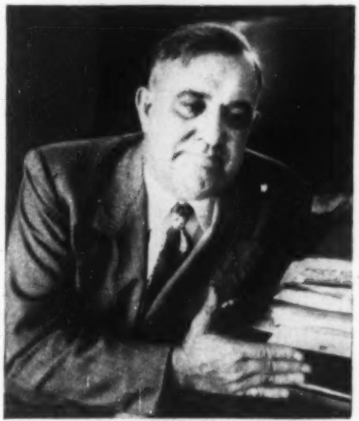
So when the contract expired last Friday, the five trades struck. They've been joined since by the painters. Area covered by the shutdown ranges from two to ten counties, depending on the trade involved. The strike probably won't last long, for already contractors who aren't members of the association are agreeing to pay workers, retroactively, whatever increase, if any, is given by the association.

• Timely struggle—The arguments from both sides reflected conditions across the land. The contractors said they were adamant about paying labor no more than last year, contending that cost of living has been stabilized, and complaining that contracts are scarcer and bidding closer than it has been in a long time (see also p. 21).

The crafts said they aren't making as much as similar workers in other larger cities. "Besides," said a spokesman for the striking trades, "we never have and we never will sign a two-year contract, even with a substantial wage increase."

There's been no picketing, and other crafts, some of whom already have signed up at pay boosts, have been unaffected by the walkout, so far.

Construction in West Virginia was having its troubles too. Nearly a thousand workers—laborers and electricians—were on strike in the Wheeling and Charleston areas. The issues were the same as in Ohio.


ENR Photo by Compton

Keenan in new job

Joseph D. Keenan is resigning his post as secretary-treasurer of the American Federation of Labor, Building Trades Department to take over a top-ranking job in the union he joined in 1914 as an apprentice—the International Brotherhood of Electrical Workers (AFL).

Keenan has been appointed as international secretary of the IBEW by J. Scott Milne, who has become the union's new president.

Keenan's post in the IBEW will be a powerful one. Differing from the practice of most unions, the IBEW secretary runs its policy-making executive council and is ranked as high in IBEW hierarchy as the president, who does not sit in on the council sessions.

The 58-year-old Keenan served as building trades secretary since 1951 after leaving the directorship of the AFL's political wing, labor's League for Political Education. His successor will be named at the Building Trades Executive Council meeting which is scheduled to be held early in May.

Both Keenan and Milne, 54, who succeeded Dan W. Tracy as IBEW president, will be formally voted into office at the IBEW convention in August.

Keenan has piled up a record of government service since he went to Washington, first in the Office of Production Management and later as a consultant in the Office of Defense Mobilization. In 1945 he went to Germany with Gen. Lucius Clay as labor adviser.

Milne has been editor of the "Electrical Workers Journal." He is secretary-treasurer of the Eastern Labor Craft Assn., and president of the International Labor Press of America.

He has been in the IBEW since 1918 when he joined Local 125 in Portland, Ore.

Taft-Hartley

Lots of noise, no action—that's labor law prospect

The battle over the Taft-Hartley Act is moving into the open. Congressional committees, closeted in debate over a myriad of technical changes to the labor-management law for many weeks, have come to terms on what sort of amendments they would make to the federal rules on union-employer behavior.

But there the agreement ends. The Senate Labor Committee has come forth with a proposed bill that resembles the product of its counterpart in the House only by its title—Taft-Hartley. The suggested changes move in virtually opposite directions.

Last week President Eisenhower jacked up congressional leaders on the subject. Just when they were prone to let T-H rest for another year, he told them the Administration had promised to revise the law and he wanted action. So both committees went to work and came out with new bills—bills that are sure to bog down in debate not only between the House and Senate but between Democrats and Republicans on both sides. If the President continues to exert pressure, there's a chance Congress can reconcile its differences and vote a new law.

Just what a new Taft-Hartley bill would contain is as much of a mystery. Perhaps the only certainty is that a new bill will be a good thing for the American Federation of Labor's Building Trades Department. Both the Senate and House groups approved Mr. Eisenhower's suggestion for easing restrictions on unions in the construction industry in two ways:

• By allowing employers and unions to sign contracts in casual employment industries such as construction—providing that workers must join the union within seven days. The present minimum for union shop contracts is 30 days.

• The present secondary boycott ban would be relaxed in the construction industry to permit employes of one contractor to picket an entire construction project. Under the present law, this picketing is illegal because it may hurt other contractors who are working on the project but nor involved in the dispute.

On states rights, the senators backed the White House plan to permit individual states to declare emergencies in the case of strikes, except where

Taft-Hartley national emergency provisions are invoked. The House would go much further and permit the states to invoke their labor laws in all cases where Taft-Hartley could be used—not only in emergency strike situations but in respect to everyday conflicts. The federal law is now supreme on labor relations affecting inter-state commerce, except for the union shop.

On secondary boycotts the House committee voted to sharply restrict unions (except for the building trades) from taking action against neutral employers as a method of applying pressure on employers with whom they have a dispute. The Senate group failed to act on this.

Sheet metal workers pull pickets at Oak Ridge

The atomic energy factory at Oak Ridge has emerged from a strangle hold that for days halted all construction of two vital atomic projects, one of which is so important that its nature is still top secret.

Striking sheet metal workers (AFL) pulled off their pickets in the secret Y-12 and the uranium separation K-33 projects, allowing other craftsmen to resume construction on the half-billion-dollar plant.

But the 700 sheet metal workers, striking for travel pay from their homes to the project, did not return to work. The other 6,500 workmen, who had refused to cross the sheet metal picket lines, trickled back nevertheless.

This week's was the second strike called by the sheet metal workers since early November. The strike—now and then—was over travel pay. They want seven cents a mile to and from their homes to the job.

The contractors, Maxon Corp. at K-33 and Rust Engineering Co. at Y-12, have refused to give the full seven cents and instead offered $1.50 a day per worker—the same travel pay given the steamfitters and painters. The contractors say the seven cents a mile would be $3.90 a day per worker.

The sheet metal workers of Local 21 refused the $1.50 in November and still refuse it. They struck in early November and in the second week put out picket lines, closing down the projects. That strike ended after three weeks, when a federal fact finding board was named.

The board recommended three propositions but never revealed what they were. Nothing came of the report, and the sheet metal workers walked out again this week, their picket lines closing down the jobs temporarily.

Cost of picketing

Colorado court awards damages against unions

A flutter of activity in courts of law in cases involving construction unions has been noticeable in the West. It's debatable—or at least too early to tell—whether there's a trend to take construction disputes to the courts as a result of the new policy of the National Labor Relations Board to duck all but those fights which are clearly in interstate commerce. But three western court cases, one of them five years old, bear examination.

• **A first for Colorado**—Colorado courts have seen what reportedly is the state's first case in which a construction contractor won damages from labor unions for picketing.

Three AFL locals have been ordered by a district court to pay some $37,000 in damages to a Littleton, Colo., contractor who sued the unions after they picketed his bridge project in 1948.

Contractor Henry Shore won (in round figures) $26,000 for loss of use of machinery and equipment, $8,000 in interest and $3,000 for attorneys' fees. The award was against the Denver Building & Construction Trades Council and two other locals—Operating Engineers, and Bridge, Structural and Ornamental Iron Workers.

Shore's suit charged that he had suffered damages when unions picketed his $275,000 bridge construction project on Colorado Highway 83. According to Shore, this picketing was an effort to force him to employ only union labor—and to assign iron workers to the job of carrying, setting and tying reinforcing steel used on the project. (Shore had a contract with the engineers union—but not with the iron workers.)

The unions' attorney says that the decision will be appealed to the Colorado Supreme Court, where the case has come up twice before.

• **Double bill for Arizona**—In Arizona, two suits against unions have been filed—one by a construction company and the other by a contractors' group.

Mark Cockrill Construction Co. (Phoenix) is suing the Phoenix Building & Construction Trades Council—and claiming some $1,600 damages as a result of a shutdown in June 1952.

The company charges that it was installing a 1,200-ft sewer line when its union workers were called off the job by the council's business manager and a business agent for the operating engineers union. The company says it was rushing the job because adjoining cotton land was to be irrigated—but that as a result of the work stoppage, the sewer caved in and 400 ft of pipe was broken.

The shutdown was called (says Cockrill Co.) because union officials thought the work was being done for Safeway Stores—and Safeway at that time was involved in a dispute with the teamsters' union. Cockrill contends that the sewer was for an adjoining industrial district and in no way connected with the store job.

Meanwhile, there's the other case slated for the Arizona courts; Associated Plumbing Contractors of Arizona vs. F. B. Fitzgerald, plumbers and pipefitters union organizer. The contractors charge contract violations and ask an injunction against future violations.

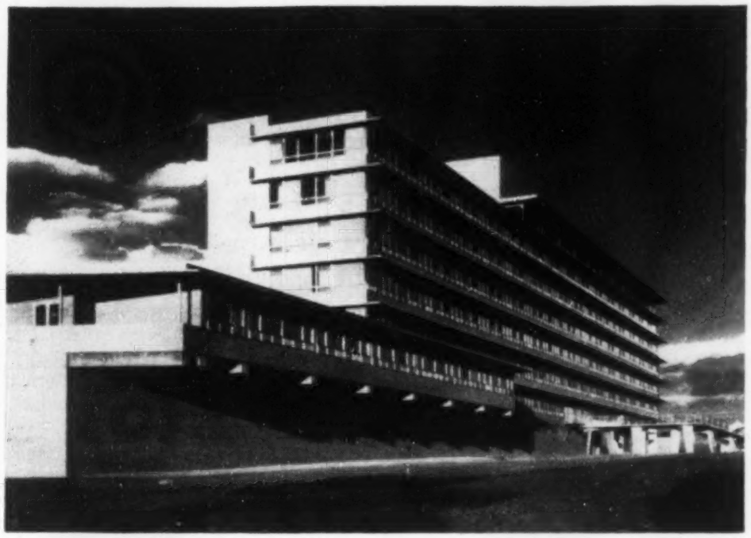
Fitzgerald is charged with disrupting a statewide agreement with the union.

When Local 741 refused to violate the statewide agreement at Silver Bell (a mining property), the contractors claim that Fitzgerald took jurisdiction—imported out-of-state workers, checked men in earlier than the contract requires, and aided the company to hire men in violation of the contract.

Labor briefs . . .

• **No unemployment problem**—Employment continues to climb weekly at the atomic energy plant near Waverly, Ohio. Some 16,000 workers already are on the job, and by next January construction and operational requirements are expected to boost employment to around 29,000. A surplus of workers is listed in some lines, due mostly to the migration of unemployed persons to the plant area.

• **Juggling the jurisdiction**—As a cure for jurisdictional disputes two unions—operating engineers and hod carriers, building and common laborers—have clarified their operations on construction projects. (1) Engineers will operate fork lifts—laborers will see that the load is on the lift, reset any spilled material, signal the engineer when equipment is in position, assist in unloading in the scaffold, when necessary. (2) Engineers will operate and maintain conveyors—loading and unloading will be done by laborers. (3) When a compressor supplying power to a drill is a separate unit, engineers will operate the compressor—laborers the drills. When the compressor is part of the drill, engineers will operate the equipment—laborers will control the type and place of drilling.



IN-PATIENT WING of new hospital has extensive window areas on the south.

Hospital with a capital H

H-shape plan smooths traffic flow, separates objectionable activities from in-patient and out-patient facilities

Looking more like a swank hotel than a medical center, the new $10,300,000, seven-story Lankenau Hospital is built on the highest knoll of a former golf course at Overbrook, Pa., just outside Philadelphia.

Designed that way intentionally to avoid an institutional look, the building, set in a parklike atmosphere, has extensive window areas on the exterior, attractive interiors and entrances at several levels to break the building masses. The power plant stack is inconspicuous, and penthouse ventilator stacks and other rooftop protrusions are cut down, so as not to destroy the flat-roof profile.

• Designed for easy expansion—The new structure replaces an old plant in Philadelphia that lacked many amenities. Parking facilities were inadequate with no space for expansion.

The new hospital, in contrast, was designed with expansion in mind. It was planned for an initial 320 beds, but those areas that will be difficult to expand later without interrupting activities or costing too much were sized for a future capacity of 500 or more beds.

Main wings of the hospital have a structural steel frame, with pan-type concrete floors. Reinforced concrete rigid frames and flat slabs are used for an auditorium-museum unit, laundry, shops and boiler plant.

• Colorful exterior, neat interior—The building is enclosed with a salmon-colored Roman brick. The same long, flat brick also is used in the interior in public spaces, lobbies, and stair halls, where it generally is set with stacked joints, to give a pleasing contrast with other finishes, such as plaster or wood paneling. The roof, insulated with perlite fill or cane-fiber insulation board, is covered with built-up bonded roofing.

Window sash is of aluminum projected type. For the nursing rooms on the south, the sash is set in stainless steel subframes.

Finishes in the interior of the building also are intended to create more the atmosphere of an attractive resort hotel than of clinical severity. Patients' rooms are equipped with flush, built-in closets, lavatory or full bath, intercommunication system and telephones. Ceilings are surfaced with acoustical plaster, and lighting fixtures are flush with them. Heavy-use areas have rubber-tile floors. Doors are wood, but have a fireproof core.

• Convenient layout — To insure smooth traffic flow and to separate objectionable activities from in-patient and out-patient facilities, the building was laid out in an H-shape. Patients' bedrooms are in one leg of the H, facing south toward the best view and away from service entrance and parking areas. Clinics are in the other leg of the H. And in the center bar are the technical facilities, conveniently located to serve both in-patients and out-patients.

The one-story power center is set off in a wing on the west of the H-shape. It does not look like a conventional powerhouse, because the usual tall stack has been eliminated. Instead, exhaust from the oil burners is discharged by high-velocity blowers through inconspicuous low stacks.

• Intercommunication — Inside the building, vertical transportation has been laid out to prevent in-patient traffic from mingling indiscriminately with visitor traffic. Separate lobbies are provided for visitors and patients on either side of a central elevator bank containing five high-speed electronically controlled elevators. Separate elevators serve visitors and patients.

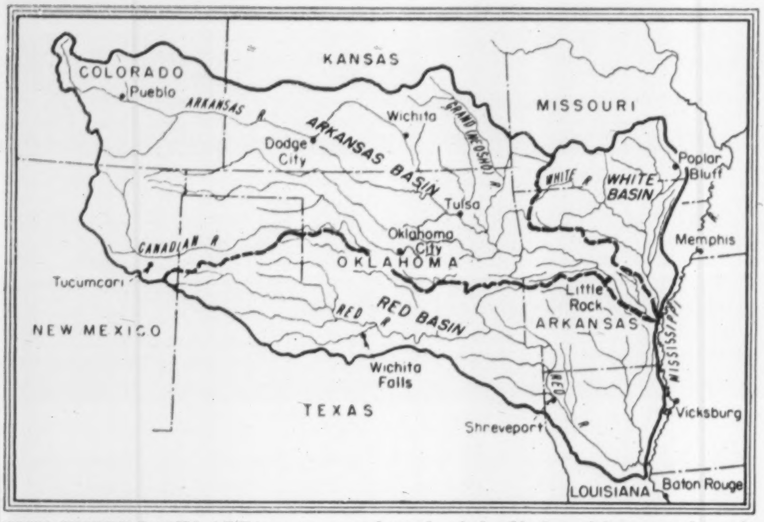
A high-speed dumbwaiter system dispatches vital sterile materials from the sterile supply center to patient areas. A pneumatic-tube system, with 16 stations, distributes pharmaceuticals, messages, records and other correspondence. And two endless chain conveyors extending from the kitchen to the highest floor distribute food to the nursing area.

• Heating and air conditioning—The building is heated with forced hot water to obtain rapid response and even temperatures throughout. The fourth floor of the diagnostic or center wing, which is the operating suite, and the fifth floor, delivery and nursery suite, are air conditioned.

This system has been designed to prevent explosions in operating rooms. Supply air, brought in from outdoors, is washed, filtered and then cleaned with the electrostatic precipitators before it is introduced into operating and delivery rooms through ceiling grilles. Providing 20 air changes per hour, the air is exhausted through grilles near the floor and carried directly outdoors, for immediate removal of any explosive mixtures that might be present.

All areas in which explosive anesthetics are administered have conductive terrazzo floors, to prevent sparks on discharge of static electricity from personnel. Meters were installed to measure the electrical resistance of personnel working there. Electrical supply to these areas is fed through isolating transformers to explosion-proof receptacles, to prevent arcing.

Vincent G. Kling is the architect, and Chester Duncan & Son, is the structural engineer. Wark & Co. is the general contractor. All have headquarters in Philadelphia.



THIS THREE-BASIN AREA covers one-eleventh of the U. S. and has a total population of 7,200,000. Many of its problems need long-range solution.

Resource needs summed up by Inter-Agency Committee

Survey covering Arkansas-Red-White basins to be completed this July for submission to Congress

For the first time in history a major segment of the United States has had a simultaneous federal-state joint study of water and land resources potentials, problems and needs. Made by the Arkansas-White-Red Basins Inter-Agency Committee, it is being used as a basis for planning a soil and water program for one-eleventh of the U. S. where over 7,200,000 people live.

As shown on the accompanying map, the three-basin area covers Arkansas, Oklahoma, and parts of six other southwestern states.

The problems concern water supply, soil conservation, flood protection, irrigation, hydro power developments, stream pollution abatement, recreation, and fish and wildlife improvements.

The trend toward urbanization has created a municipal and industrial water demand in some localities far in excess of sources of supply at present developed. In certain critical areas additional sources of groundwater must be located and developed or facilities for the storage of surface supplies provided. Otherwise, by 1975 more than 100 municipalities may be without an adequate water supply.

• **Costly flood damage**—More than 12,000,000 acres, about 6½% of the total area, are subject to flooding. Flood damages average about $64 million annually. A part of this flood plain land is included in the 6,750,000 acres that are suited for installation of drainage measures or improvement of present drainage systems.

There are 1,500,000 acres now being irrigated. Some of this acreage could use an additional water supply profitably. In addition, there are about 11,000,000 acres of unirrigated fertile lands that have some prospects of receiving irrigation water.

• **Hydro power potential**—Estimates of electric power needs by 1975 in the three basins and some contiguous territory are for an additional 12,400,000 kw of generating capacity. The 1975 requirements for additional generating capacity are about 145% of the existing facilities.

Several problems cannot be summed up in a total figure for the three basins. Stream pollution exists in many places, with oil field waste being the most widespread offender. Other industrial wastes, natural brines from alkaline watersheds, and municipal wastes also cause pollution.

Only one-tenth of the land being used for crops in the three basins is in a condition where good soil management alone will maintain proper productivity. On the favorable side of the ledger, however, more than 96% of the 180,000,000 acres is suited to some type of productive use.

A little more than a third of the area is used for cropland and about 27%, or 50,000,000 acres, is in woodland. About 15,500,000 acres now in woodland would be suitable for cropland, while more than 16,000,000 acres now cleared should be returned to the growth of trees.

About 84,500,000 acres of land are suitable for cultivation. But 8,700,000 acres now in cultivation are unsuited to this use and should be put to grass or reforested. Moreover, 47,000,000 acres now in cropland need complete conservation farming and good soil management to maintain permanent cultivation.

Possible solutions for many of the problems found through the study have been sketched out. The committee, with its many working units, now is studying the interrelated effects of the possible solutions.

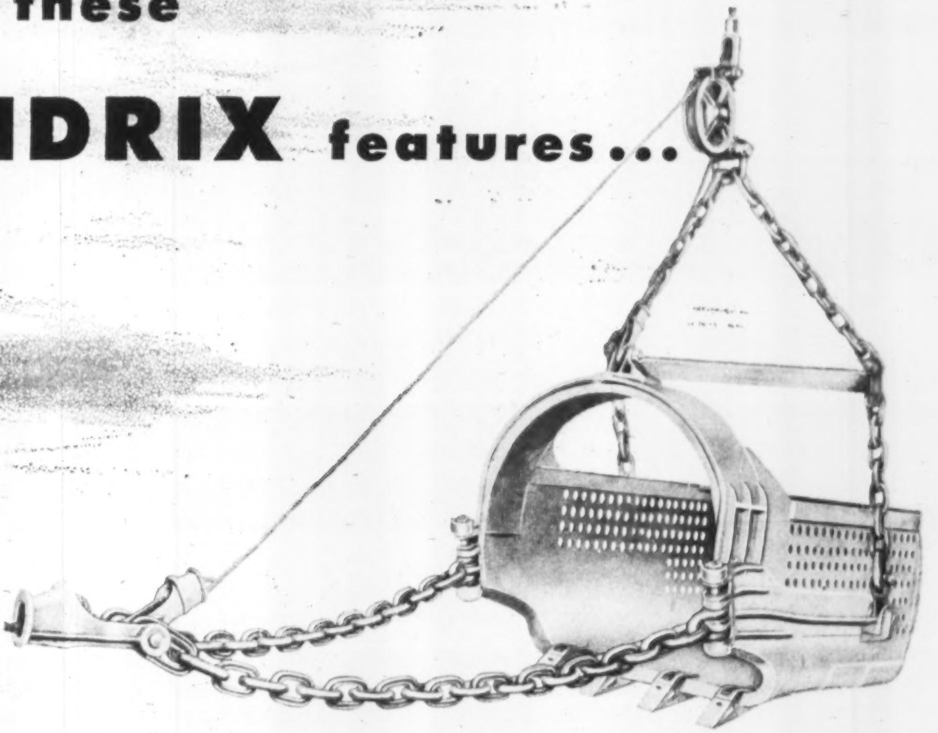
More detailed engineering is now being done, along with work necessary for estimating costs and benefits on the more promising measures. Other measures are expected to be eliminated before the plan is completed by July 1955, or earlier.

Agricultural research, educational and credit programs will be proposed as well as many types of physical construction such as dams, irrigation systems, levees and terraces, and improved farming and forestry practices. The completed plan, to be presented to Congress, will take into consideration projects and programs that may be sponsored either by states, local public bodies, free enterprise or the federal government.

• **Engineering teamwork**—Hundreds of technicians and specialists from federal and state agencies, universities and private business are assisting the 15 Inter-Agency Committee members. Representatives of seven federal agencies and eight states make up the main committee, and each representative uses personnel with other regular duties to help out in the work. Some of the federal agencies have assigned full-time employes to the study in co-ordinating offices in Tulsa.

The federal committee members are: Brig. Gen. Herbert D. Vogel, chairman, Department of the Army; C. W. Seibel, Department of the Interior; John A. Short, Department of Agriculture; J. A. Elliott, Department of Commerce; E. McDonald, Department of Labor; E. C. Warkentin, Department of Health, Education and Welfare; and Wilbur F. Fairlamp, Federal Power Commission.

Governors' representatives for the eight participating states are: Roy T. Sessums, Louisiana; John M. Dewey, Missouri; Arthur M. Emmerling, Arkansas; A. P. Rollins, Texas; R. V. Smrha, Kansas; Ivan C. Crawford, Colorado; N. R. Graham, Oklahoma; and John H. Bliss, New Mexico.



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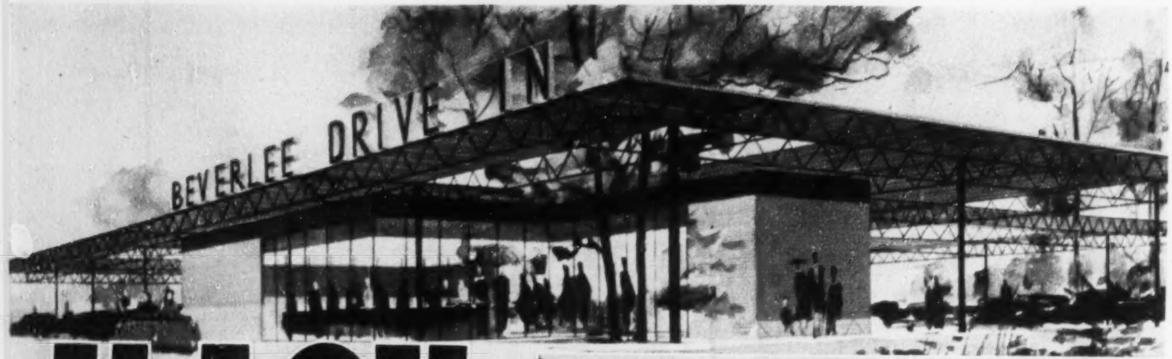

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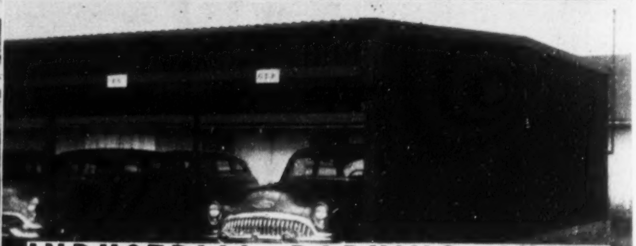

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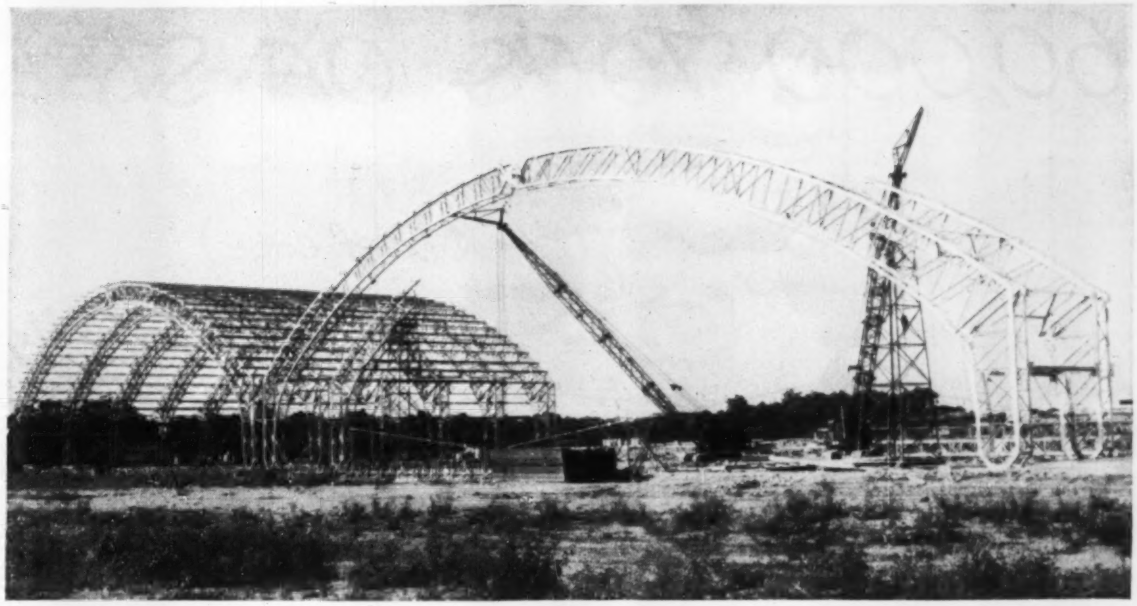


Record three-hinged arch spans 278 ft

With completion of a $1-million hangar at the Greater Pittsburgh Airport a new span record has been set for three-hinged steel arches. Clear span for the new arches is 278 ft.

The former record holder was the framing erected last year for a Lockheed Aircraft Corp. factory in Burbank, Calif. Those arches span 252 ft. However, two-hinged, trussed rigid frames with 358-ft span were erected a few years ago in England (ENR Apr. 8, p. 532.)

The new hangar, incorporating two sets of the record-span arches, is 589 ft long by 180 ft wide, including a 40-ft wide leanto along the rear. Hangar doors roll open to provide a 255x40-ft clear entrance.

• Box trusses—In each of the two hangar areas, the roof is supported on six box-shape, trussed arches spaced 25 ft c-c. Symmetrical about the crown hinge, the arches are 4 ft wide. They have a depth of 8 ft at the base and crown and of 14 ft at the eaves. Rise at midspan is 76 ft. Underfloor tie rods between the hinged bases carry the thrust.

Top and bottom chord of the arches consists of a pair of angles, forming the corners of a box. Gusset plates for attachment of the web system were welded to them in the shop, and all web members were punched and shipped loose for ground assembly prior to erection.

A complete half arch was assembled in the fabricating shop to check accuracy and fit of members. Chords for all other arches were jigged to the first trial assembly to insure uniformly fabricated components. Each complete arch assembly weighed 42 tons (not including purlins, bracing and sheeting). Total structural steel dead load averaged 23 psf.

• Erecting the long arches—The bulk of the steel was shipped by railroad to a siding about five miles from the job site and transported the remaining distance on flat-top trailer trucks and pole trailers. At the site, the components were assembled into quarter-span sections, bolted and given an initial coat of aluminum paint.

Base sections, erected in pairs at the start, were set on pile-supported concrete pads and the base hinge pins driven home. Outer ends of these quarter-sections were supported on temporary frames. Next, purlins, struts and bracing were bolted to the pair of sections, forming a well braced structure. Then two cranes with a 90-ft boom and 35-ft jib raised the two center sections, after which chords were spliced and the crown pins inserted.

Before the temporary frames were removed, the arch ties were pretensioned to take the thrust. Finally, after struts, purlins and bracing for the first bay were connected up, remaining arches were erected one at a time.

Every fourth purlin is a knee-braced truss extending the complete length of the hangar. These trusses form the main longitudinal bracing system in the curved surface of the arch chords. Also, diagonal wind bracing was placed in both the upper and lower chord systems in all bays, except the center. Bracing between the two end arches transmits wind loads from the walls to the ground.

• Erection time—The twelve arches, purlins and bracing were erected in about 9,200 man-hours. Two to three crews, of six to eight men each, erected about 20 squares of sheeting and insulation for the roof per day. When erection was completed, the structural steel was given a final field coat of aluminum paint.

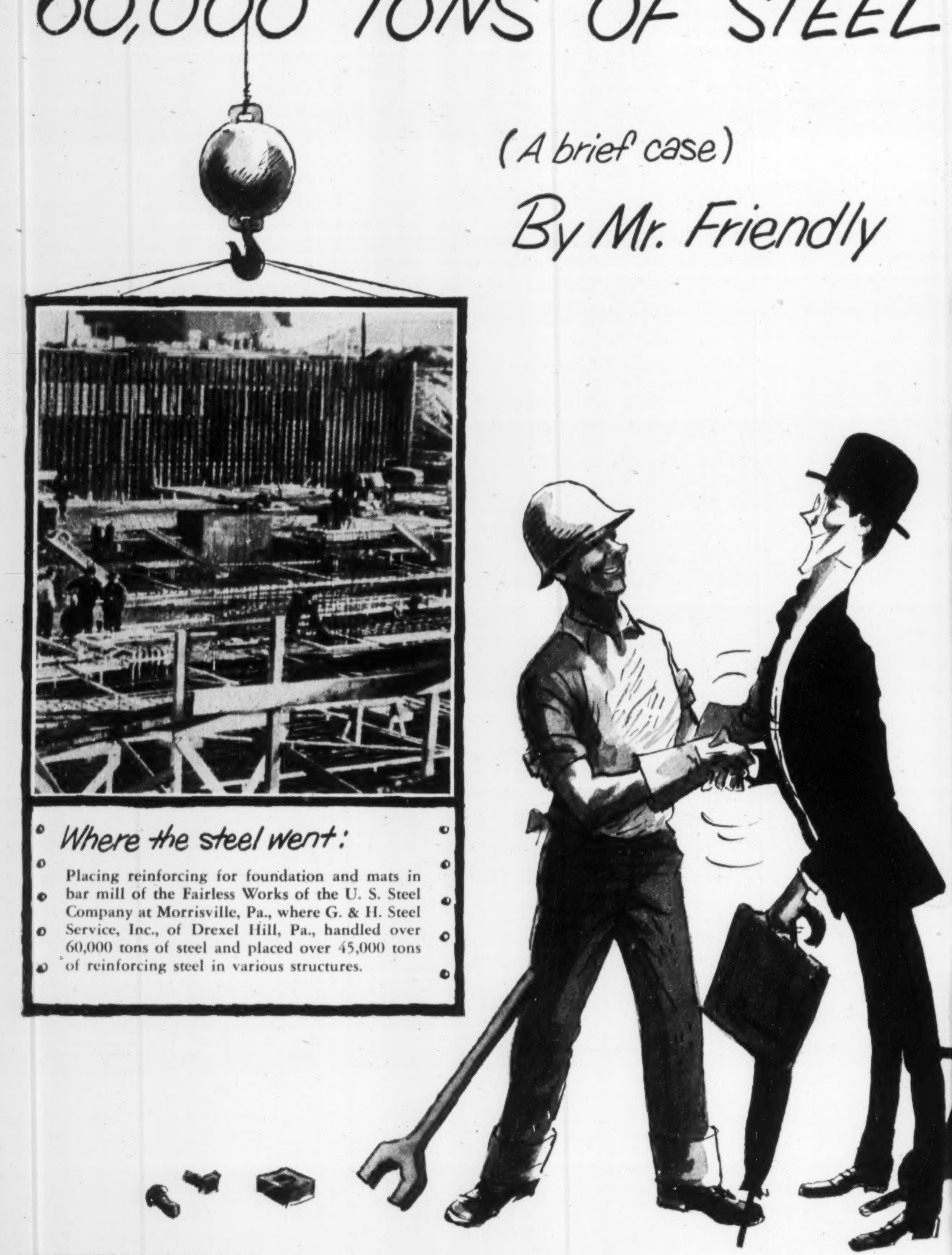
Roof and walls of the hangar are made of deep-ribbed galvanized copper bearing light-gage steel. Rigid glass-fiber insulation board is suspended beneath the roofing and also is clipped to the metal walls. In addition, fire curtains and a sprinkler system are installed under the roof for fire protection.

The hangar superstructure and electrically operated, bottom-rolling, 14-leaf doors were designed, fabricated and erected by the Dresser-Stacey Co., Ideco Division, Columbus, Ohio, in cooperation with Leland W. Cook, consulting engineer, and Joseph Hoover, consulting architect, both of Pittsburgh. Elwin G. Smith & Co., of Pittsburgh, erected the steel under a subcontract, and Allegheny Building Co., of the same city, was the general contractor. Construction was under the direction of John B. Sweeney, director, and Edward G. Messner, assistant director and chief engineer, of the Allegheny Department of Aviation.

60,000 TONS OF STEEL

(A brief case)

By Mr. Friendly



Where the steel went:

Placing reinforcing for foundation and mats in bar mill of the Fairless Works of the U. S. Steel Company at Morrisville, Pa., where G. & H. Steel Service, Inc., of Drexel Hill, Pa., handled over 60,000 tons of steel and placed over 45,000 tons of reinforcing steel in various structures.

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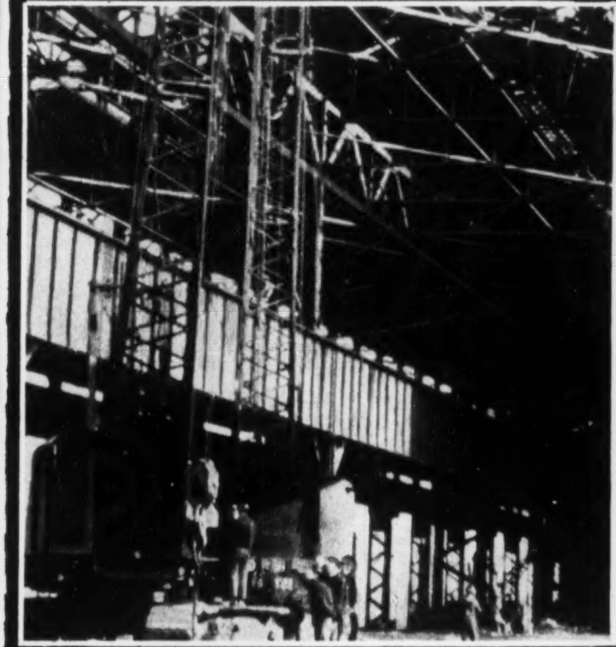
AND NO ASPIRIN!



Raising steel, unloaded by G. & H., for construction of open hearth furnaces. Reinforcing in foundations of this huge building also placed by G. & H.

G. & H. unloaded the steel for this Ore Unloader on the river front and also placed reinforcing in piers, abutments and foundations.

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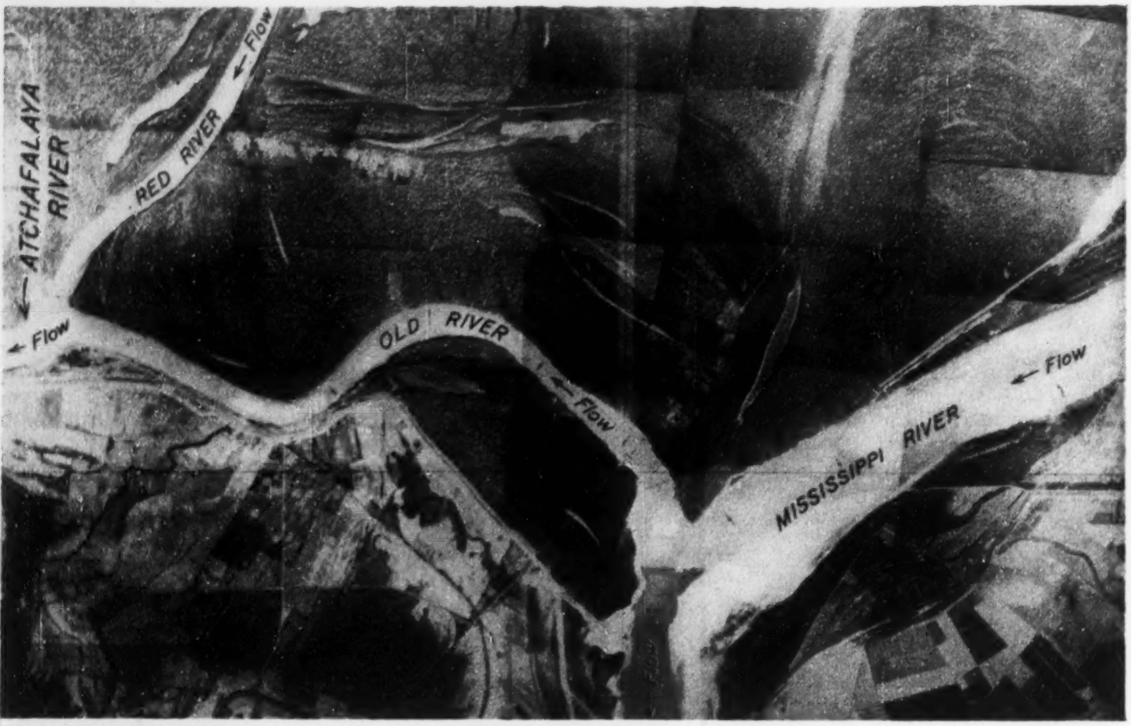

ATCHAFALAYA RIVER
RED RIVER
Flow
Flow
OLD RIVER
Flow
Flow
MISSISSIPPI RIVER

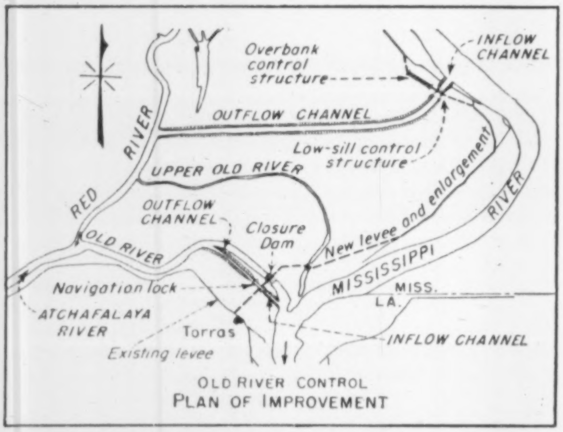
THE MIGHTY MISSISSIPPI may forsake the lower 313 miles of its present channel for a new outlet to the Gulf of Mexico . . . the outlet being only 6 miles in length. Old River holds the secret to the question:

Will the Atchafalaya capture Old Miss?

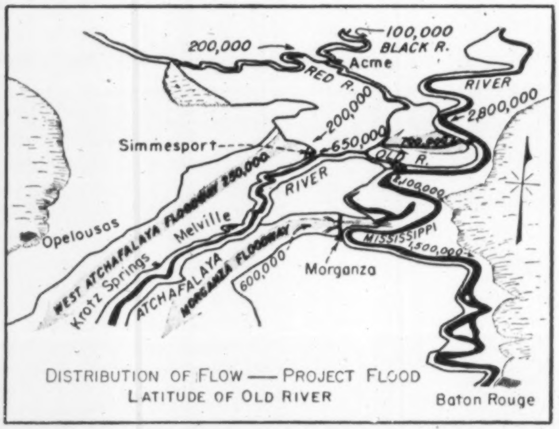
Army Engineers say it won't if corrective measures are taken in time at the latitude of Old River, a distributary connection

For years now, a short cut to the Gulf has been wooing the Father of Waters away from New Orleans, Baton Rouge and other towns along the lower 313 miles of the Mississippi River channel. It's gotten so that Old River, once a loop in the Mississippi, has been stealing 23% of the Mississippi's flow and shunting it down the 140-mile Atchafalaya River to the Gulf.

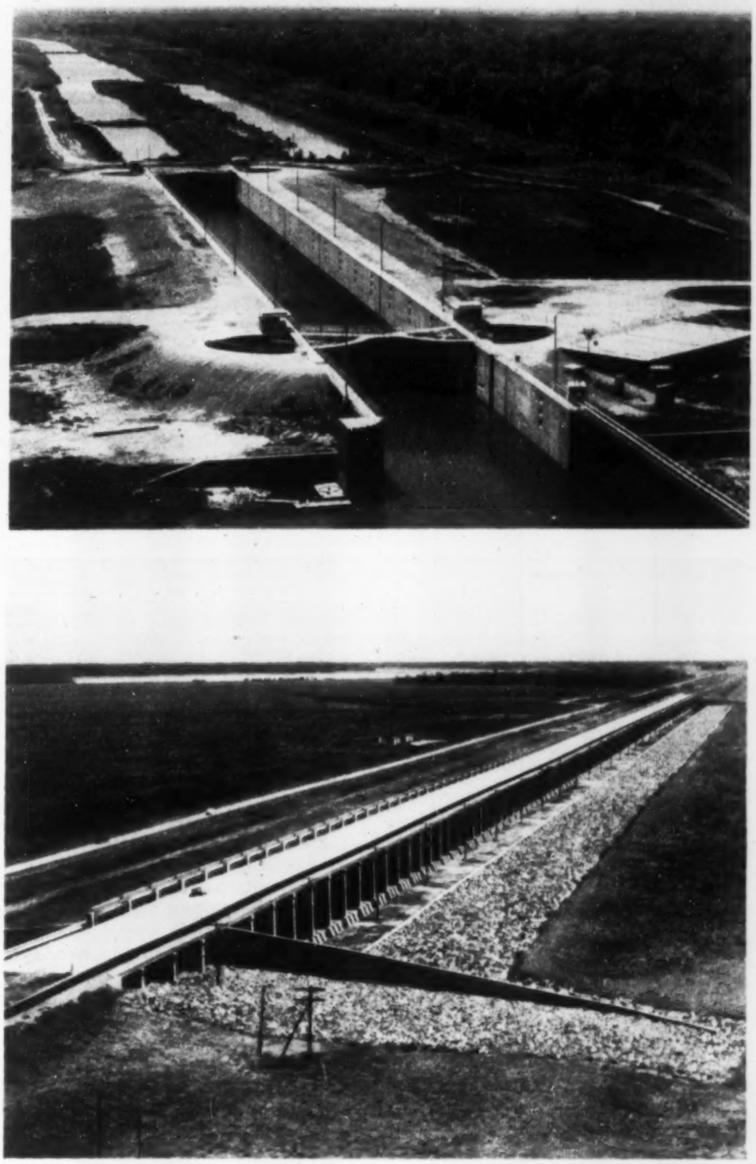
Early in March the Corps of Engineers released data to show that if nature is allowed to take its course, the Old-Atchafalya channel will be taking 40% of the Mississippi—a point of no return—by 1975. The Corps presented a corrective plan that had been developed by its Mississippi River Commission. It outlines a $70 million to $80-million, 10-year project expected to keep the meandering lower Mississippi in line.


Overbank control structure
INFLOW CHANNEL
OUTFLOW CHANNEL
RED RIVER
Low-sill control structure
UPPER OLD RIVER
New levee and enlargement
RIVER
OUTFLOW CHANNEL
Closure Dam
OLD RIVER
MISSISSIPPI
Navigation lock
MISS.
LA.
ATCHAFALAYA RIVER
Torras
INFLOW CHANNEL
Existing levee
OLD RIVER CONTROL
PLAN OF IMPROVEMENT

PROJECT PLANS include two control structures and an outflow channel to the Red River. A closure dam across Old River, a navigation lock, and some new levee construction are also included.


100,000
BLACK R.
200,000
Acme
RED R.
RIVER
2,800,000
200,000
Simmesport
650,000
700,000
OLD R.
WEST ATCHAFALAYA FLOODWAY 250,000
RIVER
2,100,000
Melville
Opelousas
MISSISSIPPI
1,500,000
Krotz Springs
ATCHAFALAYA
MORGANZA FLOODWAY
600,000
Morganza
DISTRIBUTION OF FLOW — PROJECT FLOOD
LATITUDE OF OLD RIVER
Baton Rouge

CONTROL WORKS will siphon off 700,000 cfs during the lower Mississippi's project design flood of 2,800,000 cfs above Old River. Of remaining 2,100,000 cfs, 600,000 cfs would be diverted to Atchafalaya Basin through the Morganza Floodway.



Corps of Engineers photos.

SECTOR GATES, similar to those in the Algiers Lock below New Orleans (top) will probably be used in the new navigation lock at Old River, while the overbank control structure upstream will be a gated structure similar to the Morganza flood control structure (bottom).

Brig. Gen. John R. Hardin, president of the Mississippi River Commission, has stressed in repeated public statements recently that there is no cause for alarm. The corrective works now proposed might take 8 to 10 years to complete, but if they are undertaken now, they will be completed in time to keep the Atchafalaya from mastering the Mississippi.

• **Not a new problem**—This is not a new problem that has suddenly developed. As early as 1888, the danger of such an occurrence was reported to the Mississippi River Commission by Capt. Dan C. Kingman. Neither is it a fearsome and catastrophic event that can happen without warning in the immediate future.

But the problem is a real one and the Army Engineers recognize the fact that the Atchafalaya Basin can capture the Mississippi River within the forseeable future, if preventive measures are not taken in time. It could happen as early as 1968.

• **Old River is the crux**—Keystone of the entire undertaking is Old River, which has a total length of only 6 miles. It forms a connection between the Mississippi and the junction of the Red and Atchafalaya Rivers. The hydraulic efficiency of this connection controls to a large degree the amount of water which can flow from the Mississippi down the Atchafalaya River.

In the early days of record, water flowed in either direction through Old River—sometimes toward the Mississippi and sometimes toward the Atchafalaya—depending upon the relative stages in the two rivers. Since 1916, however, the number of days when the flow was toward the Mississippi has been gradually decreasing. With the exception of only nine days in 1942, the flow has been from the Mississippi into the Atchafalaya for the entire period of the last 11 years.

Old River has been enlarging and is continuing to enlarge its cross-section. Its average width has increased from 793 ft to 1,195 ft, while its mean depth has increased from 35 ft to 51 ft.

The Army Engineers are neither unconcerned nor over-alarmed about the necessity for controlling the flow of the Mississippi through Old River and the Atchafalaya Basin. For more than a year, they have been making field studies, soils explorations, hydrographic surveys and model studies.

• **Up to Congress**—Preliminary plans were first advanced to a point where the pattern of what must be done was pretty well crystallized. Tentative designs were then prepared, to give reliable cost estimates, and the entire report was prepared in sufficient detail so that it can be used as the basis of authorizing legislation. If Congress authorizes the project this session, and appropriates funds for starting construction during fiscal '56, the work could get well under way by July of next year.

Just when the Atchafalaya could capture the Mississippi is uncertain but not so the possibility of it happening. This was brought out in a report of the Mississippi River Commission made public early last year. This said, in part:

"The Commission finds, on the basis of its detailed preliminary report,

(*Continued on page 38*)

. . . Atchafalaya and Old Miss

that the Atchafalaya River, if left alone, will capture the Mississippi. This view is supported by the unanimous findings of outstanding consultants engaged in the study. How soon this will occur is not susceptible of precise determination. It would be unwise, however, to remain unprepared to take prompt and effective steps to prevent the occurrence. . . .”

• River habits—In considering what can happen to the normal habits of a major river such as the Mississippi, the important thing to understand is that a change or diversion of its flow into a new channel is not a sudden thing. It does not occur like the crevassing of a levee, or the bursting of a dam.

According to the experience of the Army Engineers in river regulation, when a distributary stream carries about 40% of a major river's flow, the situation has reached a critical stage. The main river is in an uncertain condition, and may change its course rather quickly, depending upon the nature of the flood flows that are developed.

After this critical stage is reached, the rate of enlargement of the tributary's channel may be quite rapid. Within a few years the channel could become so large it would be beyond control.

The Atchafalaya is now carrying an average of 23% of the Mississippi's flow below Old River. This is well under that required for entry into the critical stage of diversion. This percentage, however, is increasing each year, and the rate of increase could become accelerated by a series of floods of the magnitude of the one that occurred in 1927, or even an inundation as great as that of the 1950 flood.

• Weather cycles a factor—The Army Engineers have been keeping a close check for the last 30 years on the tendency of the Mississippi to desert its present channel below Old River in favor of the Atchafalaya. Just when the Atchafalaya could become the master stream depends, of course, upon a number of factors, most of which are in turn dependent upon the wet and dry weather cycles.

Their studies lead them to believe that, under normal conditions of development, the Atchafalaya, if let alone, could become the master or larger stream between 1965 and 1985. This provides an average middle date between these two dates of 1975—barely two decades from now. Furthermore, by that time this uncontrolled diversion may have gone beyond the limits of practicable control.

• A dark picture—The possibility of the Atchafalaya some day capturing the lower Mississippi is a serious one for Louisiana. For one thing, the lower Mississippi would be eliminated as an important outlet for flood waters. Both New Orleans and Baton Rouge would be stranded on a salt water estuary.

If the Atchafalaya basin were to become the main outlet for the Mississippi, it would have to be able to handle flood flows up to 3,000,000 cfs. This would necessitate the raising of costly levees, set back to provide a larger floodway. Rich farm lands in the basin would be destroyed. Towns within the basin would have to be moved or they would be destroyed during a major flood, while railroad and highway bridges crossing the basin would have to be relocated, raised or lengthened.

Moreover, the adverse effect on navigation in the lower Mississippi River can well be imagined, with tows being unable to reach the cities of New Orleans and Baton Rouge unless they are sent by way of a circuitous and hazardous route.

New Orleans' water supply and sanitation problems would be tremendous. When the flow in the Mississippi dropped so low as to permit intrusion of salt water from the Gulf of Mexico, the city would have to abandon its present river intakes and find another source for its fresh water supply. Complete treatment works would have to be built to handle the city's sewage, which now is dumped into the Mississippi below New Orleans and swept out to the gulf by the current. The costs of these additional water and sewage treatment facilities might exceed the entire cost of the proposed control facilities at Old River.

• Control structures—The principal features of the plan are three structures—two control structures on the west bank of the Mississippi River about 10 miles upstream from Old River, and a navigation lock connecting the two rivers.

Other features include a 7-mile outlet channel from the smaller of the two control structures to Red River at a point about 12 miles above its junction with Old River. An earth fill dam will be built in Old River, and approach channels constructed for the lock. About 8½ miles of the west main-line Mississippi River levee in that vicinity also will be enlarged and extended about 3 miles.

The smaller of the two control works—termed the "low-sill" structure—will be reinforced concrete, about 577 ft between abutments. This gated-type structure, with its 13-gate bays, is designed to pass bankful and lesser flows from the Mississippi into the Atchafalaya River.

• Overbank control structure—The second, or "overbank" structure will be similar to the Morganza flood-control layout (ENR June 12, 1952, p. 34), and will serve much the same purpose. It will be reinforced concrete, about 3,400 ft long, with 97 bays.

Its chief purpose will be to augment the low-sill structure when Mississippi River stages exceed bankful, by passing excess overbank flow from the Mississippi into the Red River backwater area, thence into the Atchafalaya.

• Navigation lock—The proposed navigation lock will be located in a land cut between Old River and the existing south bank levee, about one mile southwest of the mouth of Old River.

Sector gates probably will be used in the lock, to facilitate the passage of mean low water flow and lower stage flows through the lock.

• Construction schedule—Under the Army Engineers' planned schedule of construction, the low-sill structure—with its inlet and outlet channels and embankment connections with the existing controlling levee—will be built first.

Completion of these works will provide a means of passing considerable flow except for extremely low stages. If necessary, it could be utilized to reduce the slope and flow through Old River. Moreover, it is the most desirable control unit to have available should some unforeseen condition make it advisable to close Old River prior to completion of the entire project.

The second phase of construction would be to build the overbank structure and its embankment tie-in with the existing controlling levees. This would permit the gap at Old River to be reduced in width or closed if the rate of channel enlargement of Old River and Atchafalaya River at that time should make it advisable to do so.

The third step would be to construct the navigation lock and its approach channels. And finally an earthen embankment would be constructed to link to each other and to the lock the two control structures and the main-line levee. The portion of

(Continued on page 41)

Put a HOMELITE CARRYABLE PUMP on YOUR Job and Eliminate Delays

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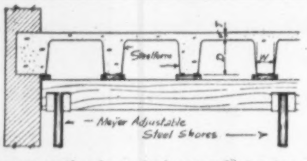

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this levee extending across Old River, probably will be placed hydraulically.

• **Method of operation**—At very low flows, necessary diversion of Mississippi River flow will be obtained by manipulation of the navigation lock. During low flows, it will be held open until the stage permits flow over the low-sill control structure.

When the combined flow through the lock and low-sill structure reaches 45,000 cfs, the flow through the lock will be regulated to maintain that total flow. When the amount of flow through the low-sill structure reaches 45,000 cfs, the lock will be closed to free flow.

Above that stage the control structures will be regulated to approach as nearly as practicable stages which would be produced by flow through Old River under present normal conditions and similar stages.

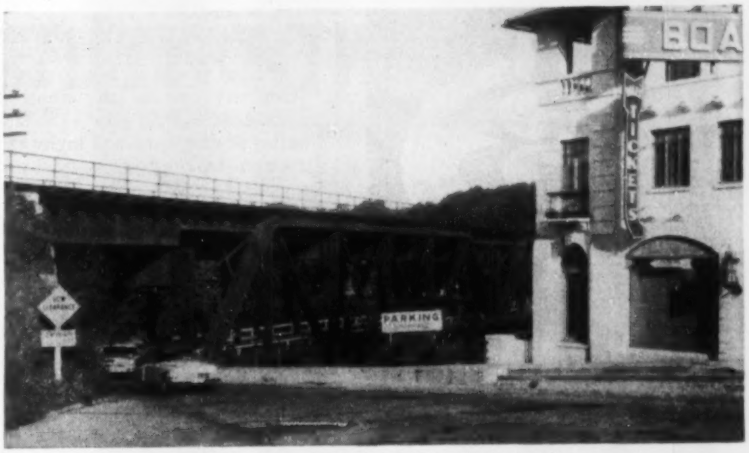
Similarly, during large floods, flow from the Mississippi into the Red River backwater will be regulated so as to prevent stages in the backwater from exceeding the stages that would have occurred during a similar and equal flood under present conditions.

• **No radical remedies**—In all of its planning and designing of the overall project to keep the Atchafalaya River basin from capturing the Mississippi River, the Army Engineers are not attempting any radical measures. The regulation structures are designed to maintain the same relationship that now exists between the Mississippi and the Atchafalaya at midbank and higher stages at Red River Landing.

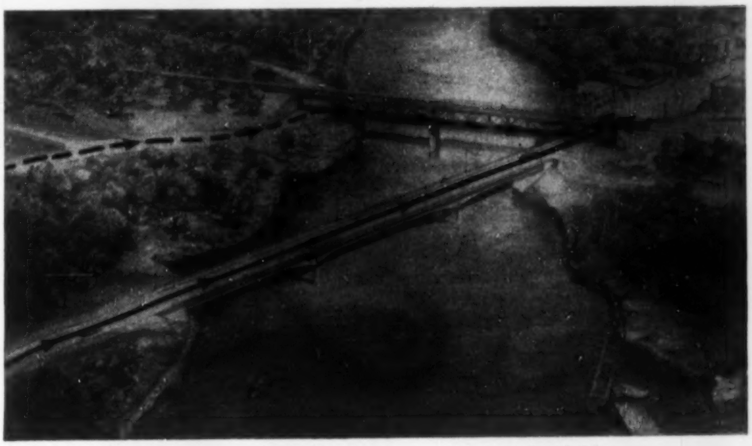
The Mississippi below Old River is a relatively stable, hydraulically efficient river. And the Army Engineers' objective is to keep it so. They have evolved a pattern of planned operation of the structures which they believe will accomplish that objective.

Experience may dictate, however, a need for revising the plan of operation. Should this occur, the structures will have sufficient flexibility to permit readjustment of flows as necessary to maintain Mississippi River capacity and improve the Atchafalaya River.

• **Engineers in charge**—The entire project is under the supervision of Brig. Gen. John R. Hardin, president of the Mississippi River Commission, and Lower Mississippi River Division Engineer. Preliminary design and engineering has been carried out by the New Orleans District, which will also have the responsibility of construction. Col. Charles T. Tench is district engineer. J. C. Baher is head of Planning and Reports for the district, and Marshall Bush is head of Planning and Reports for the division.



BAD SQUEEZE for truck and tourist traffic will be eliminated by . . .



STRAIGHT LINE approach over three-span continuous-girder bridge.

How to break a bridge bottleneck

New bridges at Wisconsin Dells accounted for $2 million of Wisconsin's $40-million program which will be stepped up

Two major bridges now under construction in the famed Wisconsin Dells region will be a boon to this vacation-land's traffic. Both will span the Wisconsin River. One will eliminate a hazardous traffic bottleneck at the end of Main Street in Wisconsin

(Continued on page 42)

Major bridge contract items

	Wisconsin Dells Bridge:		Point Bluff Bridge:	
Item	**Quantity**	**Unit Price**	**Quantity**	**Unit Price**
Excavation (cu yd)	1,130	$80.00	1,820	$24.00
Concrete (cu yd)	1,570	70.00	2,370	65.00
Reinforcing steel (lb)	229,200	0.12	396,260	0.12
Structural steel (lb)	1,483,100	0.20	2,193,600	0.175
Steel castings (lb)	10,780	0.50	——	——
Carbon steel forgings (lb)	1,170	1.00	——	——
Sheet lead (lb)	1,500	0.60	3,880	0.40
Floor drains (each)	26	50.00	54	40.00
Lighting System (lump sum)	1	5,000.00	——	——
Concrete seal (cu yd)	670	40.00	30	60.00
Untreated timber test pile (lump sum)	——	——	1	5,000.00
Untreated timber piling (lf)	——	——	20,000	2.00
Treated timber piling (lf)	——	——	1,240	2.50

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Dells (pop. 1,927); the other will join two state highways now dead-ending on opposite sides of the river near Point Bluff, about 12 miles upstream.

Contract cost of the Point Bluff bridge is $683,000; plus $456,000 for 4-miles of new approach highway construction—making it a $1.1-million project. The Wisconsin Dells project is also in the $1-million class, the contract price of the bridge alone being $565,000.

Both projects are needed improvements of long standing. For several years traffic passing through Wisconsin Dells on U. S. Highway 16 had to wind its way across the river on the lower level of the Milwaukee Railroad's double-deck railroad-highway bridge. Sharp turns at each end of the bridge, limited headroom and narrow roadway width caused traffic jams and accidents.

• Wisconsin Dells bridge—As indicated on the accompanying artist's conception of the new bridge, it will be an extension of Wisconsin Dell's main street, passing beneath the upper level of the railroad bridge.

This 30-deg skew crossing called for 610-ft of bridge. Cantilever type steel deck girders carry a 30-ft reinforced concrete roadway and two 5-ft sidewalks. The end spans (anchor arms) are each 183 ft long. They cantilever 61 ft out over the river piers to support a 122-ft suspended span, making the center span 244 ft c-c piers. Girders vary in depth from a minimum of 8 ft to a maximum of 15 ft at the piers. All shop splices in web plates, cover plates and flange angles are welded. Stiffeners are also weld connected. All field connections are riveted. The design live load is H-20.

The depth of water below normal pool at Wisconsin Dells is about 35 ft. This calls for a 10-ft thick combination seal and footing for each of the two river piers. Footings will be keyed into the sandstone riverbed to provide resistance to sliding. Total heights of piers are 50 ft and 55 ft, respectively.

• Point Bluff bridge—Chief function of the Point Bluff bridge is to join State Route 71, which terminates on the west side of the Wisconsin River, with State Route 135, which ends on the other side of the river. This will give a direct east-west highway between Mauston (pop. 3,170) and Montello (pop. 1,070), which are on a direct line between the metropolitan areas of Fond du Lac and Sheboygan on the eastern side of the state, and LaCrosse on the western side of the state.

This structure, which also crosses the Wisconsin River on about a 30-deg skew, is 1,540 ft long. Each of its two lines of deck trusses is made up of three continuous units. Each unit consists of three 170-ft spans, or a total of 510 ft. Span lengths of the 9 spans were made equal for better appearance. The trusses are 14 ft deep at the midspans and 21-ft deep over the piers. They carry a 28-ft reinforced concrete roadway, with 18-in. wide curbs for emergency walkways.

One pier will be founded on sandstone. The others will be supported on untreated timber piles driven into sand to a bearing of 18 tons per pile.

The Point Bluff bridge is being constructed as a federal aid secondary highway project. The Wisconsin Dells bridge is being built with state funds.

• Last year's program—The two bridges were part of the state highway department's 1953 program, which included $5.2-million worth of bridge construction placed under contract. Other major contract work in the state's $40-million construction program last year, covering 2,222 miles of highway improvements, included:

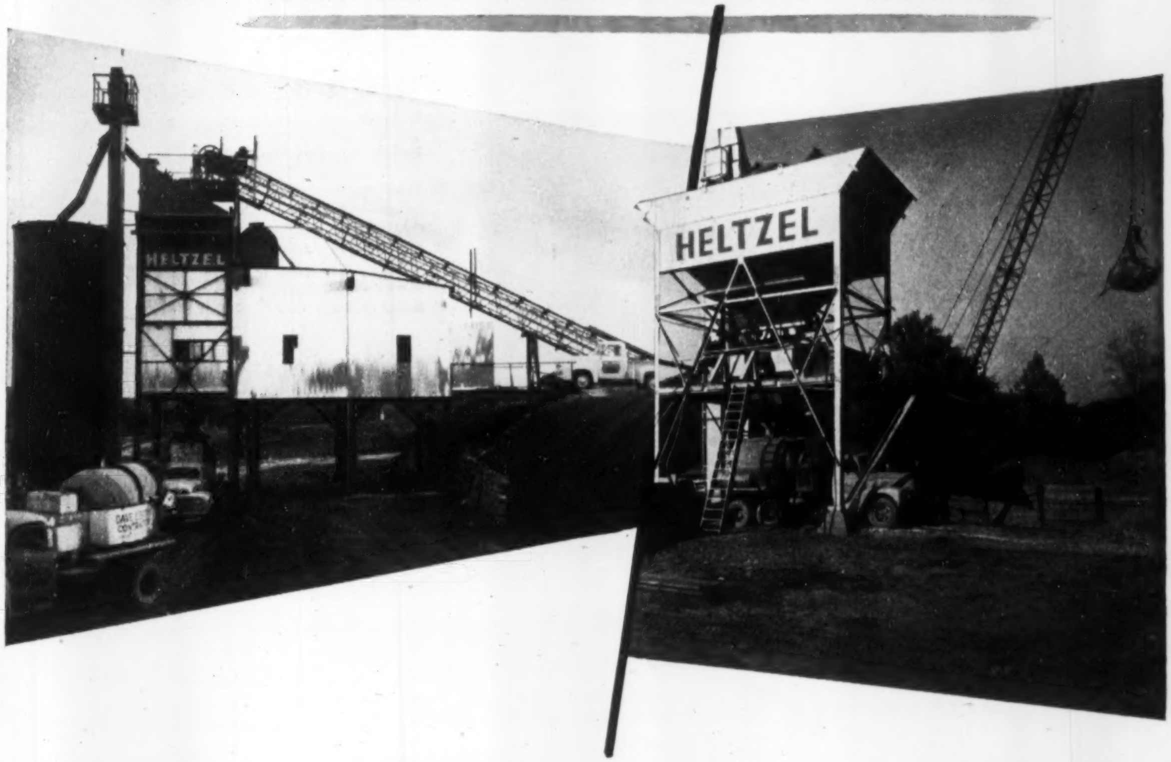
Grade and drain, 450 mi; gravel and crushed stone surfacing, 622 mi; mixed bituminous surfacing, 287 mi; bituminous concrete, 255 mi; plant mix bituminous surfacing (single aggregate), 125 mi; portland cement concrete pavement, 90 mi; portland cement concrete base course, 58 mi; and stone ballast, 304 mi.

• This year's program—This year the state highway department expects to spend about $33 million improving 380 miles of state trunk routes and urban projects. Of this amount, $21 million will be state highway improvement funds, $10.5 million will be federal aid, and $1.5 million will be county, city and village funds. An additional $10 million will be spent on federal and secondary projects, county highways and local roads and streets not on state trunk highway routes. All told, the state highway department's 1954 construction program should run about 7.5% or $3 million more in contract award than last year. Seven improvement projects scheduled to be placed under contract this year will cost over $1 million each.

• Engineers and contractors—E. L. Roettiger heads the Wisconsin State Highway Department as its chief engineer. A. T. Bleck is construction engineer; J. S. Piltz, road design engineer; and C. H. Kirch, bridge engineer.

H. H. Mass Construction Co., Algonquin, Ill., is the contractor on the Wisconsin Dells bridge. Contractors on the Point Bluff project are: the John F. Beasley Construction Co., Chicago (bridge); Arthur J. Pagel, Almond, Wis. (east approach); and L. G. Arnold, Inc., Eau Claire, Wis. (west approach).

The HELTZEL TYPE-TWO PLANT



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Butler buildings provide post-free interiors for shops, stores or offices that are 100 per cent usable. They can be economically heated—insulated for year-around comfort. Insurance rates are low.

You don't need a big bankroll to own a beautiful shop or store, tailored to your individual needs. Write today for full details and the name of your nearby Butler dealer!

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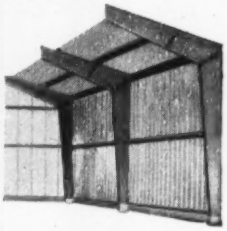

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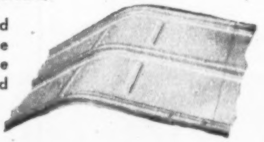
The one-piece, die-formed roof ridge eliminates ridge roll—helps to make the building leakproof and weather-tight.



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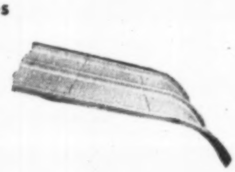
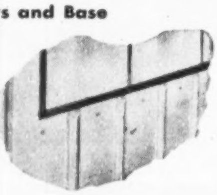
Attractive Curved Eaves

The neat, die-formed eaves—which bolt to the roof sheets—add to the appearance of Butler steel buildings...increase the strength of the eaves . . . help insure weather-tightness.



Weather-sealed Windows and Base

Where corrugated sheets meet windows or the foundation, they are tightly crimped for a snug fit that keeps out snow, moisture and rodents.



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BUTLER MANUFACTURING COMPANY

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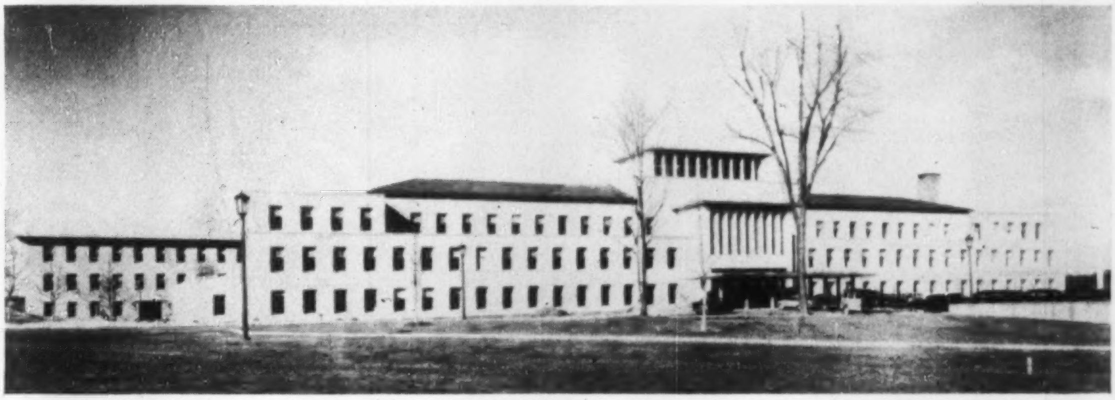


NEWCOMER—Administrative personnel of General Foods Corp. have left their city quarters for this new base in the country.

Why move business to the suburbs?

"Bedroom towns" on city outskirts offer aid, accommodation to draw corporate offices away from their big urban neighbor

While business firms now located in major cities are studying moving all, or portions of their operations out to suburban areas, several New York City companies are doing something about it. Nearly all attribute the move to crowded conditions in their present city locations.

Important reasons are the advantages offered by municipalities that heretofore have been considered "bedroom" towns.

The city of White Plains, (population 45,000), county seat of Westchester County, has attracted many of the emigrants. Twenty-four miles north of N. Y. City, and offering central location on the Harlem Division of the New York Central Railroad, proximity to the Westchester Municipal Airport, and a financially sound city government, this city measured up to even the most exhaustive investigations by firms endeavoring to flee the congestion of New York City.

Besides, White Plains can provide excellent housing, better than average schools and has cooperated with the companies in rezoning suitable tracts after the firms had chosen their sites and applied to the city council for enabling ordinances.

Virtually all structures built or contemplated are three stories or less, but floor areas in most cases are 80,000 sq ft or larger. Since most of the firms have bought from two to fifty acres for their new headquarters, plenty of land is available after construction, for parking area, recreation facilities and future construction.

• **General Foods Corporation**—Fifty large moving vans recently rolled away, at 15-minute intervals, from the General Food home offices at 250 Park Avenue, N. Y. City, loaded with 18,000 pieces of furniture and other office equipment.

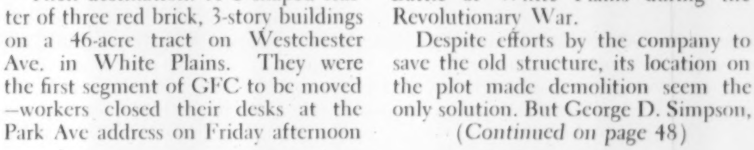
Their destination? A U-shaped cluster of three red brick, 3-story buildings on a 46-acre tract on Westchester Ave. in White Plains. They were the first segment of GFC to be moved—workers closed their desks at the Park Ave address on Friday afternoon and reported for work Monday morning at White Plains, with little interruption in office routine.

This activity was repeated over two subsequent weekends, until the 1,200 employes were transferred (each department intact) to their new air-conditioned quarters.

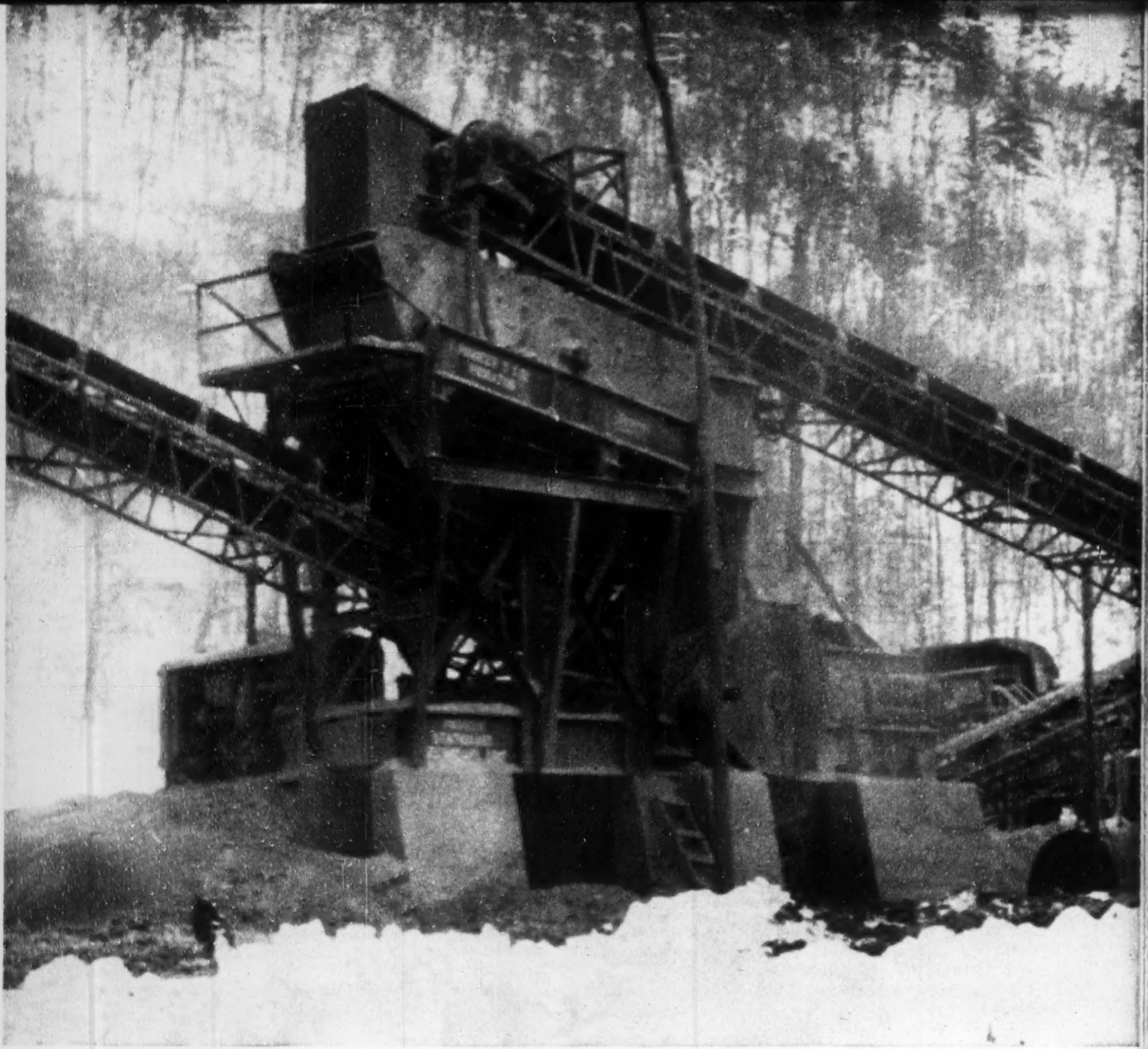
• **Save the landmarks**—When GFC purchased its tract two years ago, the land was occupied by a pre-Revolutionary dwelling, one of the reminders that this area was the center of the Battle of White Plains during the Revolutionary War.

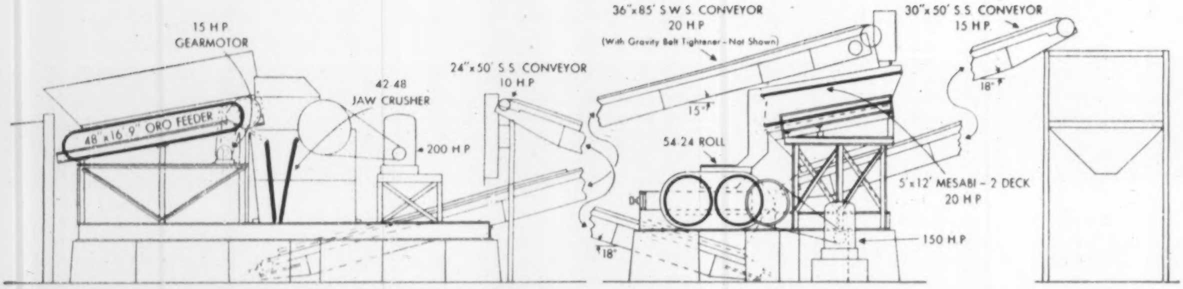
Despite efforts by the company to save the old structure, its location on the plot made demolition seem the only solution. But George D. Simpson,

(*Continued on page 48*)



DISPLACED—After two centuries on battle ground site, landmark yields to progress.




15 H P
GEARMOTOR
48"x16' 9" ORO FEEDER
42 48
JAW CRUSHER
200 H P
24"x50' S S CONVEYOR
10 H P
36"x85' S W S CONVEYOR
20 H P
(With Gravity Belt Tightener - Not Shown)
15°
54 24 ROLL
18°
30"x 50' S S CONVEYOR
15 H P
18°
5'x12' MESABI - 2 DECK
20 H P
150 H P

EXTRA BIG EQUIPMENT SPEEDS WORK ON WEST VIRGINIA TURNPIKE JOB

In the mountain country of West Virginia, big contractors anticipating turnpike jobs are watching closely the rapid progress being made on the new West Virginia turnpike. And the center of attraction is a high capacity, low cost rock crushing plant near Cabin Creek which is preparing 575,000 tons of 3" minus material with a minimum of 15 percent fines for the base course and paving on 20 miles of the new super-highway.

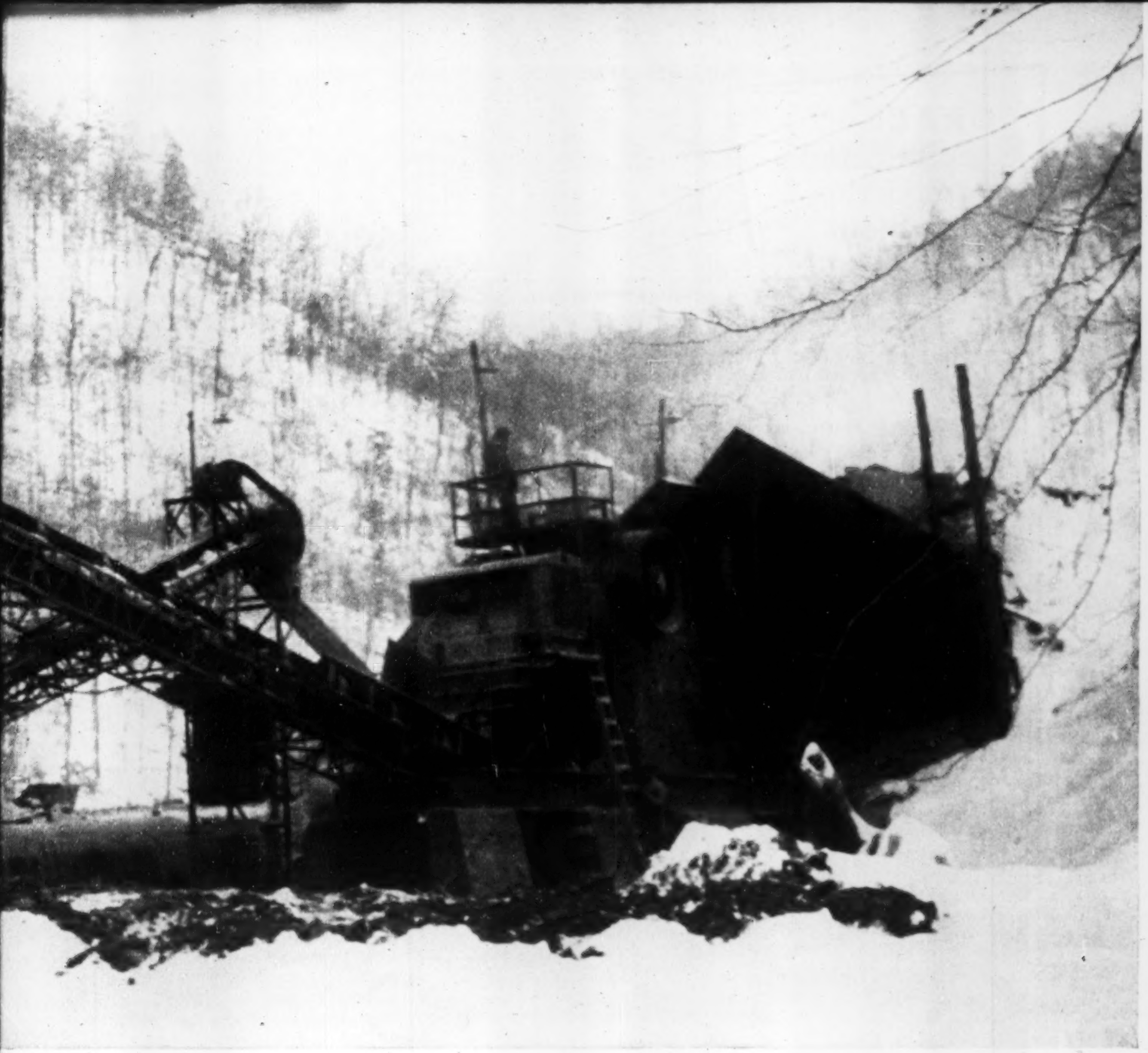
This crushing plant is owned by the Frank Mashuda Co., Gallagher and Nelson, and the Arthur Overgaard Co.

Crushing 450 Tons Per Hour

The plant operates as Tyler Breslin Quarries of Charleston, West Virginia and is producing specification material from hard sandstone at the rate of 450 tons-per-hour with 100 percent crushing.

Heart of the plant is the world's largest overhead eccentric jaw crusher, a PIONEER 4248 with 4 cubic yard crushing chamber. Equipped with self-aligning roller bearings and hydraulic adjusting mechanism, it represents the modern trend in crusher design.

Crusher base is split horizontally for easier handling, and hydraulic pressure grooves in the shaft under the bearing races, make it possible to remove bearings with fingertips. Moving and stationary jaws are in sections which can be



reversed for longer manganese wear.

Double wall, box type construction gives the base added strength and makes it possible to keep total weight of crusher under 95,000 lbs.

The giant crusher is supplied by a 48″ x 16″ PIONEER ORO feeder equipped with massive ⅝″ thick cast manganese steel pans which take the huge loads dumped by the quarry trucks. The feeder pans have integrally cast links and are driven by manganese steel sprockets with renewable teeth.

Both units (crusher and feeder), along with motor mounting, are joined in a single primary plant mounted on 21″ I-beam skids set on a reinforced concrete foundation.

Secondary Unit Has Big Roll Crusher

Completing the all-PIONEER installation is a secondary plant consisting of a 54″ x 24″ roll crusher with one smooth and one corrugated shell, and a 5′ x 12′ Mesabi-type 2-deck gradation screen.

Support for the Mesabi screen, an extra heavy duty unit designed specifically for rugged jobs, is furnished by an extension of the roll crusher base. Three PIONEER conveyors totaling 185′ in length and a storage bin complete the plant.

In operation, material from the primary plant that passes the bottom deck is conveyed directly to the storage bin; oversize from both decks is returned to the roll crusher for further reduction.

Pioneer Helps Select Plant Site

The high-producing Tyler Breslin Quarries turnpike plant shown above was designed by a PIONEER field engineer in close collaboration with the purchaser and his equipment dealer.

This engineer surveyed the site, studied the material and specifications, analyzed the problem, then furnished the details to PIONEER's engineering department which developed the plan shown at the left.

Complete erection prints were provided, and experienced PIONEER assistance was given in the erection of the plant.

But PIONEER's responsibility didn't end when the plant when into operation. Though PIONEER equipment is recognized in the industry as requiring a minimum of upkeep, an alert, world-wide distributor service organization and factory-trained maintenance men are available whenever quick service is needed.

The Pioneer Edge In Action

Couple this service with the creative engineering that has accounted for an impressive list of "firsts" in the design and building of aggregates producing equipment, and you have a combination that's hard to beat. Operators who have seen the performance of PIONEER equipment in the field . . . call it the PIONEER EDGE.

For further details on the turnpike plant and other PIONEER high output, low upkeep crushing and screening installations, write Pioneer Engineering Works, Inc., Minneapolis, Minnesota (subsidiary of Poor & Co., Chicago).

Pioneer
Continuflo **EQUIPMENT**

vice-president of the Industrial Solvents Corporation, whose hobby it is to rescue and restore old colonial homes, took up the challenge and moved the house to a prepared foundation nearby.

This was the second moving job for Simpson – the first was accomplished two and a half years ago when he moved the 230-year-old Anthony Miller house from its Battle of White Plains site to a new location a few blocks away. The Miller house was used by some of Washington's officers during the battle (Oct. 28, 1776).

This old landmark was displaced by the executive offices of the Alexander Smith Carpet Corp., which now occupy the original site.

• **American Telephone and Telegraph Co.** – Approaching completion on Hamilton Ave., White Plains, is the Long Lines Division office and switching center of the AT&T.

More than 125 employes of the firm's engineering and payroll accounting departments already have moved into the multi-million dollar reinforced-concrete structure, with the rest of the facilities following close behind. The two buildings will house plant as well as personnel–the only firm surveyed that will use its new quarters for other than office use.

• **Allstate Insurance Co.**–336 employes will soon be moving into an 80,000-sq-ft office building situated on a 9-acre tract at Harrison within a mile of the White Plains GFC offices.

This project enables the insurance company to consolidate its local operations under one New York City roof (at present the firm occupies space in three buildings in Manhattan), and to handle a very wide area from the new Harrison branch office with 336 employes under the direction of John T. Moran, resident manager.

The structure, reaching the clean-up stage, is large enough to include expansion, and will provide ample parking for all personnel.

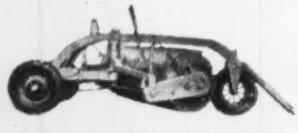
• **Planned but not abuilding**–Several companies are in the planning stage of following General Foods, Smith Carpet, AT&T, and Allstate.

(*Continued on page 50*)

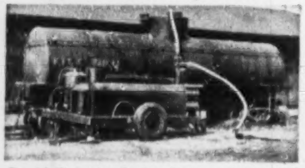
Dedication inaugurates foreign trade service

The dedication, March 25, of a $6-million marine terminal at Port Newark, New Jersey, was the kick-off for the port's common-carrier service in foreign trade routes. The terminal, operated under a ten-year lease by the Waterman Steamship Co., consists of three connecting corrugated asbestos-protected metal buildings, 200 ft x 450 ft, each serving a 550-ft-long berth. Two interesting features in the construction were the transfer by barges of relieving platform slabs precast at an off-site location, and the use of cathodic protection for substructure.

GRACE
Asphalt and Compaction Equipment

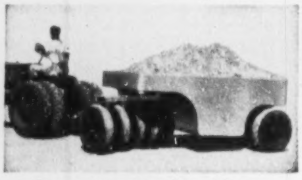

3 sweeper models, axle, engine or tractor powered.

Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.

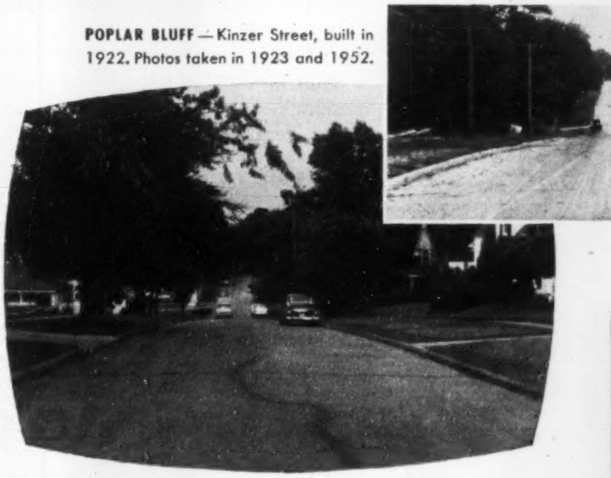

Rapid Fire circulating heaters heat and unload large tanks of asphalt.

Sheepsfoot Rollers 250 to 600 psi.

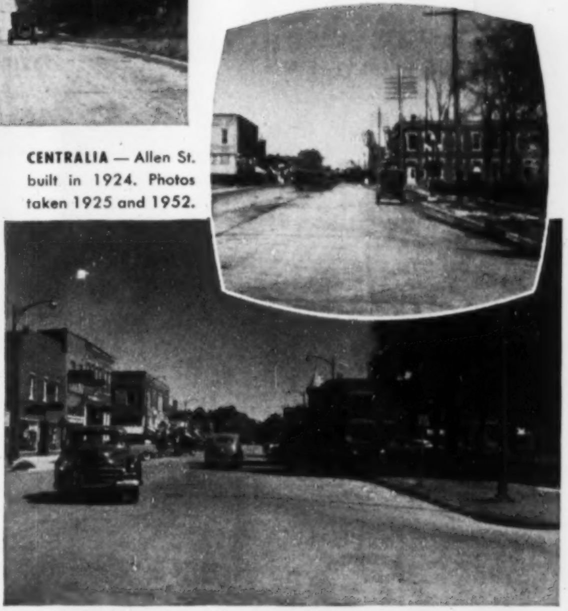
Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.


Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.
6015 S. LAMAR DALLAS, TEX.



POPLAR BLUFF — Kinzer Street, built in 1922. Photos taken in 1923 and 1952.



CENTRALIA — Allen St. built in 1924. Photos taken 1925 and 1952.

Here today – *and still here tomorrow*

that's the story of Missouri's CONCRETE STREETS

These are photos of a few old streets that have answered Missouri's challenge of "show me." They demonstrate the durability, economy and dependability of concrete streets. Missouri's taxpayers and city officials can be proud of the record of their concrete pavements.

Long service at low annual cost is typical of concrete pavement. And today, because of improvements in engineering design, materials and construction methods, concrete pavements can be built to last 50 years and more.

Concrete is the safest pavement too. Its gritty, skid-resistant surface permits *quick* stops—wet or dry. Its light color provides maximum visibility at night. Remember, *if you can't see you can't be safe!*

For more information about designing and building durable, safe, low-annual-cost concrete pavement write for free literature, distributed only in the U.S. and Canada.

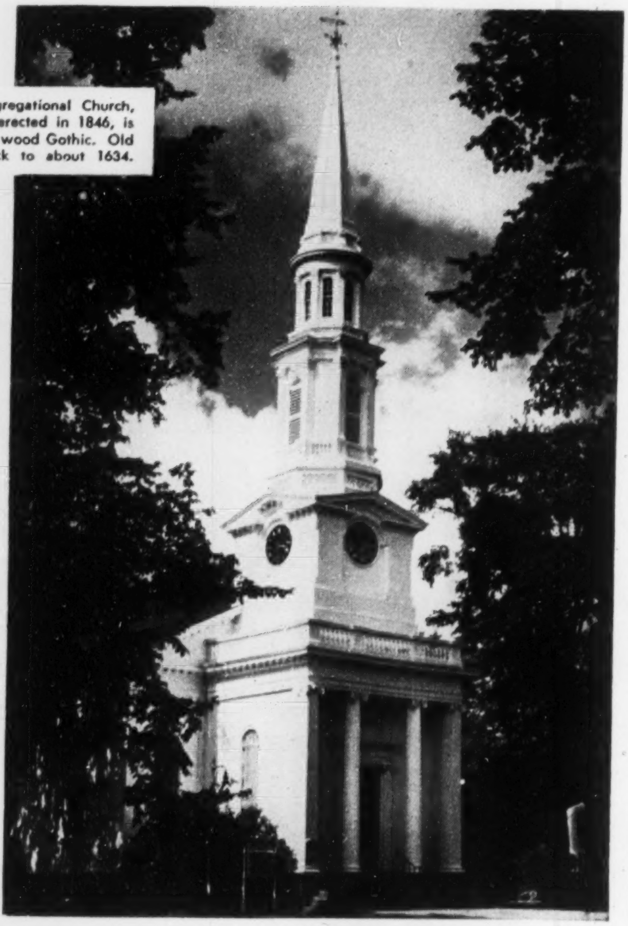
PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of portland cement and concrete...through scientific research and engineering field work

Dept. 4b-17, 33 West Grand Avenue, Chicago 10, Illinois

SPRINGFIELD — Delmar St. Built 1926. Photos taken 1927 and 1952.

CAPE GIRARDEAU — Mill Street, built in 1926. Photos taken in 1929 and 1952.



Old North Congregational Church, Ipswich, Mass., erected in 1846, is rare example of wood Gothic. Old North dates back to about 1634.

Churches of Wood

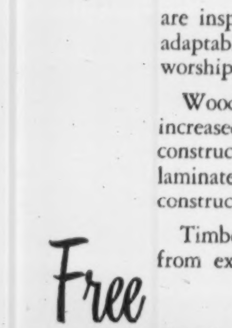
are inspiringly beautiful, traditionally revered, and readily adaptable to the modern community's needs for places of worship, religious education and recreation.

Wood's natural beauty is retained and its advantages increased by three popular methods of engineered timber construction — the TECO WEDGE-FIT connector, glued laminated, and Lamella systems. These are widely used in constructing churches, church schools and assembly halls.

Timber trusses and arches, ready to erect, are available from experienced fabricators in all areas of the country.

Free

Many outstanding American churches, built of wood, are shown in the 32-page booklet, "Churches". Send TODAY for a FREE copy.



TIMBER ENGINEERING COMPANY
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Please send copy of booklet, "Churches".

Name..........

Company..........

Street..........

City.......... Zone..... State..........

ENR-544

MUNICIPAL

• **Standard Vacuum Oil Co.**—Ground breaking will soon take place for the construction of a $5-million structure on a 55-acre tract in Harrison. Stanvac now also spreads out into portions of three downtown Manhattan buildings.

From its new home-site, the company will administer its worldwide operations that employ more than 40,000 persons.

The building will be set more than 300 ft back from the street on the brow of a hill 90 ft above street level. The design typifies the low facade favored in all new office construction in the area.

Office space for about 700 people will be provided in 200,000 sq ft of area, and the building will give panoramic views from all windows.

The company's operating departments will occupy the two main floors and directors' offices will be grouped in a set-back on the roof. Dining and recreational rooms, a library and service facilities will be located at the ground level, opening on flagstone terraces at both sides of the building.

Escalators and elevators will give access to the various levels, and the entire building will be air conditioned.

• **The Nestle Company**—This company already has left New York City as a base of operations, renting space near their planned executive offices in White Plains.

The Nestle Building will be three stories high and will house between 300 and 400 persons. It will occupy a 4-acre tract on Bloomingdale Road.

Still in the planning stage, there has been no starting date set. An expansion program within the company has delayed action on the construction of the new facilities.

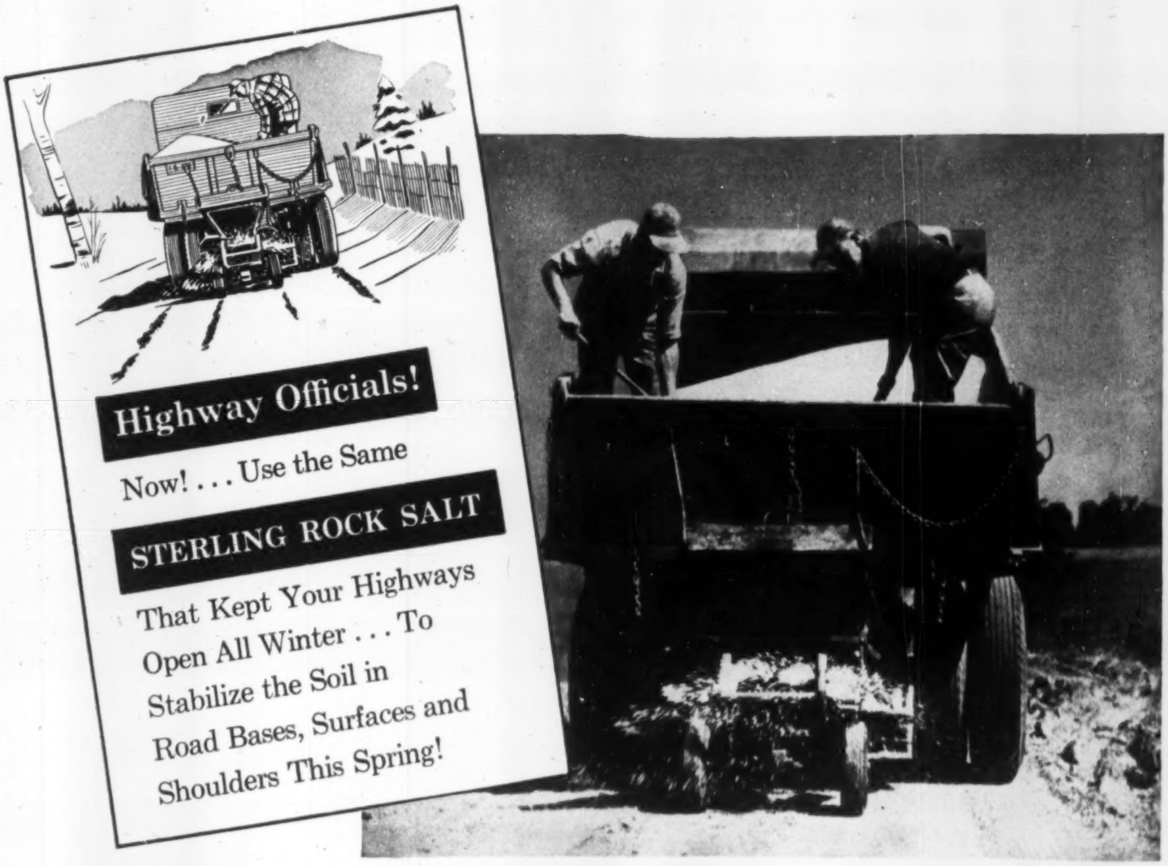
• **Union Carbide and Carbon Corp.**—Purchased two years ago were 280 acres northwest of White Plains and the company plans to move its Carbide and Carbon Chemical Co. and the Bakelite Co. to new offices there in the future.

Action has been deferred until 1956 or 1957, but plans call for office construction, with no production operations at the site.

Other firms have or are planning construction programs in the White Plains area, and all are contributing to the trend toward the low silhouette for office structures.

Among contractors active in the area are the George A. Fuller Company, builders for General Foods, Allstate and a branch store for Saks, Fifth Ave; and Turner Construction for AT&T.

(*Municipal continued on page 53*)



Highway Officials!

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STERLING ROCK SALT

That Kept Your Highways Open All Winter . . . To Stabilize the Soil in Road Bases, Surfaces and Shoulders This Spring!

TOUGHER ROADS! SHOULDERS THAT STAY PUT!

Stabilize the Soil and You Minimize Construction and Maintenance Costs!

Highway soil, properly stabilized with STERLING ROCK SALT, resists both excessive moisture and extreme dryness. Granular materials are firmly anchored. Even the strong vacuum action of speeding traffic raises little dust. Precious gravel is not blown away.

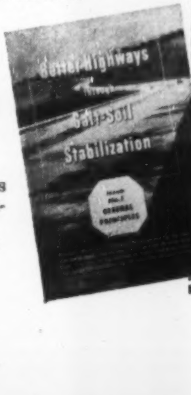
Gravel roads . . . inexpensive to build and easy to maintain . . . become first class surfaces, smooth, permanent. Bases and shoulders of concrete or black-top highways do not "break up" or "separate" under weather extremes or the cruel beating of heavy trucks.

Start now, using whatever STERLING ROCK SALT you have left over from the winter. Forecast your needs and order now for spring and summer. Make sure of delivery when you need it!

"Nature's Own Soil Stabilizer"

STERLING ROCK SALT

Free! Send for these Bulletins—filled with practical, on-the-job information for roadmen . . . "BETTER HIGHWAYS THROUGH SALT-SOIL STABILIZATION"



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Industrial Division, Scranton 2, Pa.

☐ Please have representative call.

☐ Please put me on your list to receive "Better Highways" Bulletins.

Name ____________________

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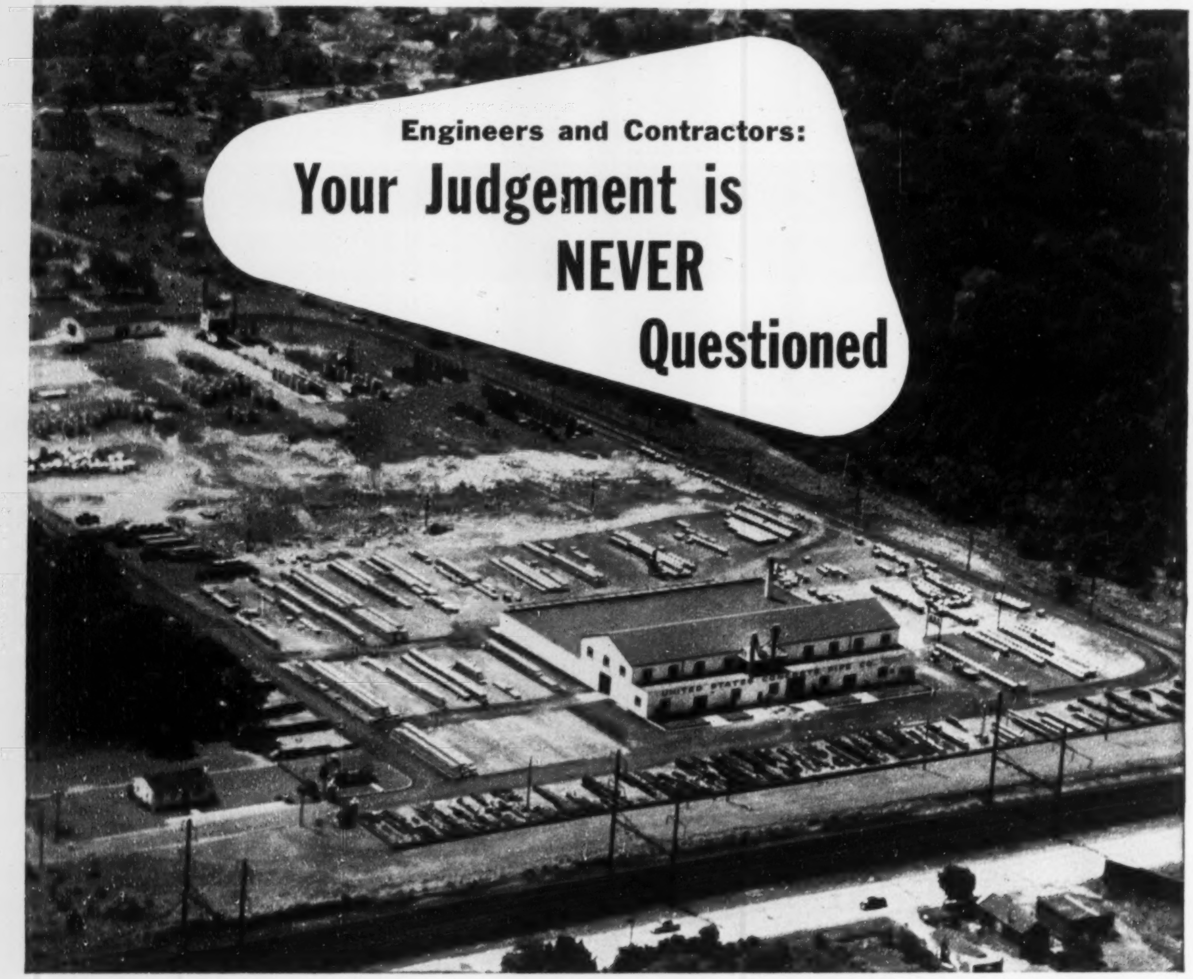

Plant No. 8 at Croyden, Pa. Where complete lines of Vitrified & Concrete Products are stocked.

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As a result of the modern plants and equipment — the high technical skill and experience — products are always dependably right — meeting or exceeding the highest standard for the industry.

Because of the eight strategically located plants and large volume production, delivery promises are kept. Universal Vitrified — United States Concrete justify your confidence.

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UNITED STATES CONCRETE PIPE CO.

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Town saves land

Burrows into cliff base to build treatment plant

A compact, primary sewage treatment plant, taking care of a residential and industrial population of 24,000 persons, will soon (scheduled for April 15) go into operation in Edgewater, N. J.

The 512-acre, half-mile-wide town stretches along the west bank of the Hudson River, with the Palisades towering above it, just opposite New York City. An additional 899 acres credited to the town lies under the water to the center of the river. The population has remained at 4,000 for the last 20 years, but its waterfront industries – Ford Motor Co., Alcoa, Lever Bros., to name a few – add a daily floating population of 9,000 to 14,000.

Called the richest borough of its size in the world, it has an assessed valuation of $25 million–one of the most valuable strips of real estate in New York Harbor. Although it stands 44th in population among Bergen County's 70 municipalities, it is the seventh largest taxpayer to the county government.

To clear up pollution in the Hudson River, the town along with others, was ordered to stop dumping raw sewage into the river, and a new sanitary sewer system and treatment plant were designed with Roscoe P. McClave, of Cliffside Park, N. J., as consulting engineer.

Sewer construction was started in 1951; work on the treatment plant began in 1952. Total cost of the project is $1,485,000. The old sewer, with its 11 outlets into the Hudson River, now will be used to take care of the area's storm water drainage.

Eight regulators will be used to control the flow and separate the old line from 25,000 ft of sewer pipe laid for the new collection system.

Because of limited space in the borough, it was required that the treatment plant occupy the smallest area possible. Site of the plant was excavated from the solid rock side of the Palisades. The rock was then used to fill in low ground along the river front to expand further the borough's industrial area.

The disposal plant has a capacity of 1.6 mgd, enough to serve twice the present population plus a "floating" industrial population of 16,500 per-

(*Continued on page 54*)

G-E 2-WAY RADIO
"KEEPS US COMPETITIVE"

VICE-PRESIDENT, J. C. GARRISON, maintains close supervision over his firm's activities. G-E radio equipment is his "most reliable foreman on every job"!

ALL TRUCKS UNDER CONTROL. "Our dispatcher is the key man in an efficient operation. He times deliveries, issues change orders, if necessary, and even expedites mechanical repairs for competitive company equipment!"

2-WAY MOBILE RADIO

● **TO STAY COMPETITIVE** in the construction business today, dependable radio communication is essential. Greenville Concrete Company of South Carolina has proved that point many times during the last four years. It offers an ideal solution to perfect timing of concrete deliveries. Any delay in unloading is instantly covered with a radio request for re-routing instructions. Every construction vehicle equipped with *G-E radio* does a *better job . . . does it faster* . . . and *at less expense.* That's how your profit gets a boost!

Investigate General Electric mobile radio today . . . apply its multiple benefits to your construction activity. Why not call our Communications Counselor at a local office or mail the coupon below.

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Electronics Park, Syracuse, New York
Please send bulletin ECR-47 showing how General Electric 2-way radio can aid me in the construction business!
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ADDRESS..
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LISTEN MEN . . . we almost mean it literally when we say: "We're not out to sell just Scaffolding to you". Frankly, we've got an idea to sell—an idea on 'how-to' erect better scaffolding—'how-to' *do the job cheaper!* The man we sold on this job, bought our idea of using 6½ ft.-high Ezebilt panels—cut 50 panels out of his needs and *saved almost one third in erection time* alone. THIS is what we're in business for—to provide you with not only the best scaffolding made, but also the best way to use it. Our new catalog pictures and tells many more reasons why you should buy Universal **Ezebilt** Scaffold.

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UNIVERSAL MANUFACTURING CORP., Zelienople 3, Pa.

sons (based on an estimated requirement of 100 gal per capita per day for residents and 50 gpcd for the industrial workers).

One feature of the work was the method of installation of three of the system's four pumping stations below the river level—usually accomplished by building caissons or cofferdams around the proposed installation. Consultant McClave conceived the scheme of sinking the walls without using caissons.

First, four-ft-deep trenches were dug, forms were erected in the trenches and concrete walls were poured. Pipes were then forced into the ground around the walls and with pumps maintaining "dry" conditions, excavation was carried on within the walls.

The heavy 12 to 18-in.-thick concrete walls slid down to their proper level as the excavation progressed. Piles were then driven inside the enclosure, and a three-ft-thick concrete floor was poured over the tops of the piles and beneath the walls.

The weight of the heavy floor slab effectively anchored the pumping stations keeping them from floating with the tide.

The stations are located 11, 12 and 13 ft-9 in., respectively, below the river level.

The sewage, which will be handled through the system by gravity and by six pumps ranging from 150 to 1,000 gpm capacity, will be given primary treatment. Sludge will be digested, vacuum filtered and flash dried for use as a soil conditioner.

Factory land goes begging as pollution scares buyers

More municipal sewage works will help solve a sad situation that now exists in Tennessee.

The state is losing new industries because of pollution in its streams, Harold Miller, executive-director of the Tennessee Planning Commission, said recently.

Miller told Rotary club members that among other places the 150 river miles between Knoxville and Kingsport offer "unparalleled sites" for industry. But he said that deals fall through when prospective manufacturers discover the amount of alkali pollution that is found in the Holston River.

"I have shown these factory sites to many manufacturers and everything was just rosy until the analysis of the river water came back," Miller said. "Only a few industries, such as rayon plants, can use streams as polluted as ours."

DRIED UP AND DUG OUT
.......in just 30 days

Pumping Contractor· American Dewatering Corporation, New York–Houston, Texas

PICTURE 22′ OF WATER IN THIS HOLE! That was the problem facing the contractor in excavating for a pumping station on the Ouachita River in Arkadelphia, Arkansas.

His first step was to install a Moretrench Wellpoint System. Although heavy gravel and marl at grade complicated the pumping operations, the Moretrench System controlled the water perfectly, and dry digging proceeded rapidly. Banks were sloped. Sheeting was unnecessary. *In 30 days, the excavation was down to grade. Time and money were saved!*

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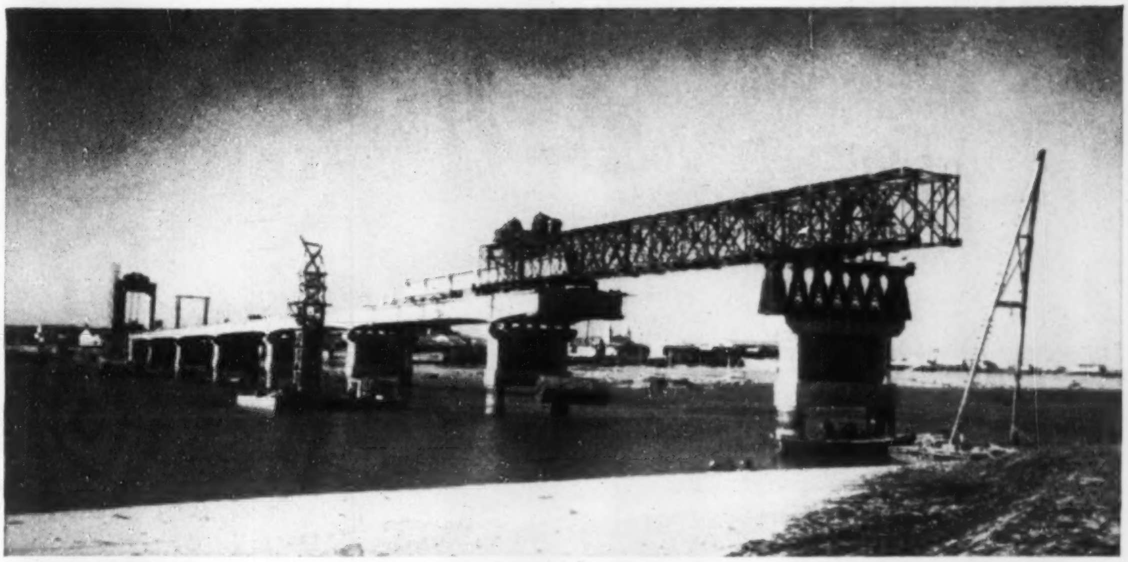


JUAZEIRO BRIDGE, across the Sao Francisco River at Juazeiro, Brazil, incorporates a continuous 13-span section 1,842 ft long in its overall 2,628-ft 20-span length. Superstructure is formed with precast prestressed concrete I-beams laid side by side six per span.

Inner-outer prestress produces record span

World's longest continuous concrete structure incorporated in precast prestressed 2,628-ft 20-span bridge in Brazil

Techniques ranging from precasting to cantilever-type erection combined to build the world's longest continuous, prestressed-concrete bridge. Crossing the Sao Francisco River between Juazeiro and Petrolina, Brazil, the 2,628-ft, twenty-span bridge will furnish the final link connecting northern Brazil with the industrialized southern state of Bahia. The bridge carries two 11-ft highway lanes, with a railway track between them.

From the north side of the river at Petrolina, the bridge extends toward Juazeiro, its first 13 spans forming a continuous structure 1,842 ft long. Eleven of these first 13 spans are 147 ft long, the first and thirteenth being 111 and 114 ft long, respectively.

The remainder of the bridge consists of two 109-ft long simply supported spans, a 110-ft long steel lift span, a 114-147-114 continuous span and a simply supported approach span 83 ft long. With the exception of the steel lift span, each span in the bridge consists of six precast, prestressed concrete I-beams laid side by side.

Average depth of the I-shaped precast beams is 6 ft 6 in. The upper flange is 4 ft 4 in. wide and the lower flange is 2 ft 3 in. wide. Near the pier the beam becomes a narrow solid rectangular section 8 ft 10 in. deep and 2 ft 3 in. wide. There is a 3-ft 8-in. space between lower flanges of the beams when they are in position.

The ninth span passes over a small sandbar-like island in the middle of the river. Piers on either end of this island are fixed supports about which the first 13 spans may expand and contract.

• Before and after prestressing—Two sets of prestressing cables are used for the concrete beams: one set is inside each precast beam and at the precasting site is post-tensioned and then pressure grouted to establish bond; the other set is exposed on either side of the beam web and tensioned to establish continuity.

A third set of cables for transverse prestress was placed, after erection of the beams, through stiffening webs along their sides. The purpose of these is to tie the structure together and prevent any lateral deflection of the beams.

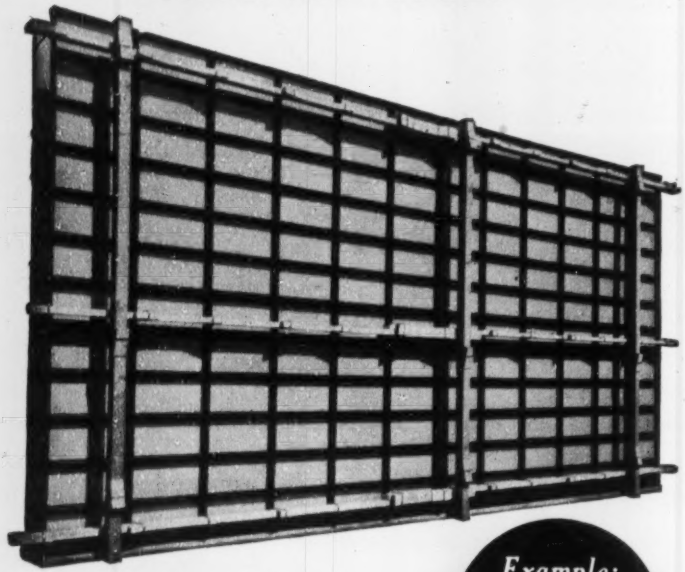
• Dual purpose precasting—Design of the precast beams filled two functions in erection of the bridge: (1) successive beams could be positioned and temporarily tied together without falsework (Splices are located where there is no dead-load moment); and (2) a large proportion of the prestressing steel could be placed in the precasting stage so that continuity of successive members could be established with a minimum of cables placed and tensioned after erection.

Each precast member cantilevers past a pier a distance of about one-fifth the adjacent span, to support the end of an adjoining beam. This design permitted a temporary tie, which has to resist shear only, to be made between successive beams. The tie was needed until all exposed prestressing cables could be placed, joints grouted and final tensioning carried out to establish continuity. Prestressing cables inside the beam webs took a sizable portion of the dead-load moments until the continuity cables were tensioned after erection.

• Leapfrogging cable lengths—With the lengths of continuity cables used—two spans plus two cantilevers—there are two cable terminal points per span. Groups of cables overlap throughout the continuous section of the bridge.

Continuity cables terminate at about the point of zero dead-load

(Continued on page 58)



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moment in each span, one terminal per span being at a splice. The exposed continuity cables—14 per beam—were positioned along the sides of each beam through concrete stiffening webs precast with the beam. Seven cable ends were anchored at each of the two terminal points in a span. The arrangement of cable lengths and terminal points allows 21 exposed cables per beam over the piers, and 14 exposed cables per beam at midspan.

There are nine prestressing cables in each precast beam web. These cables, threaded through metal ducts that had been placed in the beam forms before precasting, were tensioned and anchored at their ends with conical wedges before the beams were hauled to the site. Two interior cables lie in the top of each beam web, and five are draped in a modified parabolic S pattern, in accordance with the expected variation in bending moments along the length of the member. The last two cables swing through a parabolic curve, dropping from the top of the precast beam at one end and near a pier at the bottom of the web at midspan.

Longitudinal prestressing cables are each composed of twelve 0.2-in. dia steel wires, which have an ultimate strength between 200,000 and 230,000 psi and a working stress of 120,000 psi. Concrete design strength at 28 days for the precast members was 6,400 psi.

• Cantilever placing by traveler rig—The traveler rig for placing the precast bridge beams was made of two twin trusses 196 ft long. With a precast beam serving as a counterweight, the traveler was launched like a metal bridge onto supports on the next pier. Then the precast beam was rolled out on the traveler and placed. The traveler moved transversely to place the next beam. Roller supports designed to prevent transmitting horizontal stresses from the superstructure to the piers were used at all mobile support points in the continuous structure.

The beams were placed on the piers with lower flanges 3 ft 8 in. apart.

A concrete deck slab 4½ in. thick was poured on the top flanges of the bridge beams and the roadway surfaced with asphalt while a ballast bed underlies the railroad.

• Foundations—Piers in the river bed were formed inside a precast reinforced concrete hollow column. Up to 60 ft in length, these hollow columns were made 4 in. thick with an inside diameter at the base of 6 ft

(Continued on page 60)

BITUMULS® is used with confidence

Skilled Service is the Reason

THIS PICTURE tells a story that has deep significance for Roadbuilders everywhere. It shows a group of our Field Engineers attending a "class" that is being held at our training Laboratory.

The group contains men of varying ages, some with long service with our company; others with very few years behind them. Engineers all, they are here for a program of education and re-education. This we maintain to keep all of our men informed on the latest techniques in asphalt paving.

From all over the nation, factual jobs, reports, specifications, motion pictures, slide films, and photos—are gathered and sent for instructional use at this information center. At regular intervals, groups of our Field Engineers attend this "school." They then return to their own areas with newest information on the application of ours and other products.

The reason for this program is simple: we want you, the Roadbuilder, to be able to accept the word of our Field Men with confidence; because it is only in terms of his ability to serve you that the worth of our products can be measured.

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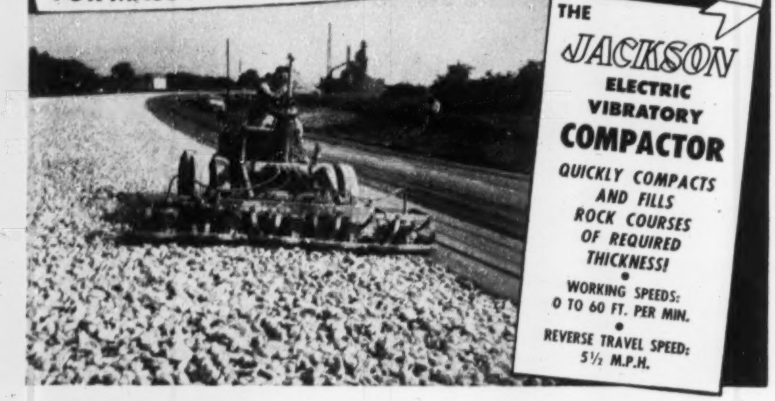

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MACADAM The JACKSON — in one pass — will sufficiently compact 12 inches of rock to support smooth rollers. In four passes, the JACKSON keys and compacts to final density. It takes just two passes for the JACKSON to completely fill voids from top to bottom of the course, when enough dry fines are spread on top in one application.

IN GRAVEL SUB-BASES (Blanket Course) 7″ thick, at optimum moisture, the JACKSON in one pass has obtained densities exceeding 100% Standard Proctor. Vibratory frequency may be varied to suit conditions.

FLEXIBLE The JACKSON is available in a standard width of 13′, 3″. Units may be subtracted on the job to meet conditions requiring narrower widths. The 26″ units can be detached and fitted with handles, providing self-propelled compactors for restricted areas, pavement patching, paving drives, compaction of granular soils in trenches, etc.

WIDENING STRIP COMPACTED IN ONE PASS
With simple equipment available, compactors may be assembled in tandem, 3 deep and in single or double row, and towed at the side of the tractor to give complete compaction of widening strip in one pass in all granular materials used for flexible base-course widening. Compactor bases of 12″ width and up may be substituted for the standard 26″ bases to fit any widening requirement.

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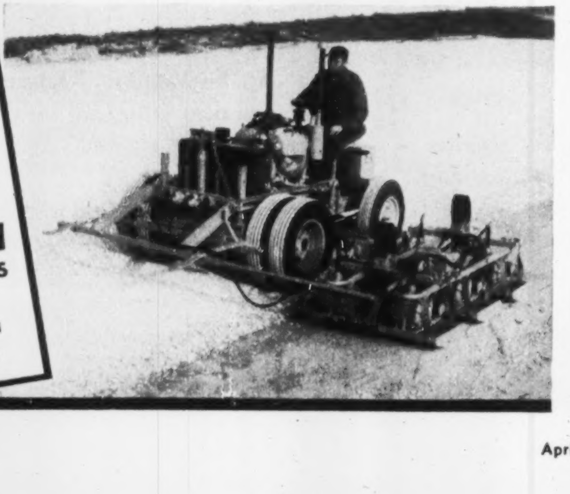

6 in. and 5 ft 9 in. at the top. The ends of the hollow column were sealed at the precasting site and the member floated to position in the river.

A tubular metal caisson with an inside diameter of 8 ft was first lowered to the river bed and excavation carried out under compressed air to bed rock. The hollow column was then inserted in the caisson and concrete was poured in the bottom to a depth of 3 ft 2 in. to anchor the pier.

Reinforcing was then placed in the hollow column and concreting was carried out to form the pier. After the operation the caisson was moved to the next site.

Caps on the piers consist of rectangular reinforced concrete members 16 in. thick in the center. Their edges are much thicker and heavier to take horizontal stresses induced by live load. The top of the member is widened in order to take the bridge beam supports.

• **Remote, inconvenient bridge site**—The whole job was heavily handicapped by a number of local conditions. Labor and materials in the area were very scarce. The bridge site is 1,000 miles from Rio de Janeiro and 280 miles from San Salvador on the Atlantic Coast. The best connection with San Salvador is by a very old narrow gage railway, and a new highway connecting Rio with San Salvador was just being completed when the work got under way.

Communications between Juazeiro and the Atlantic coast by way of the Sao Francisco River are impossible since the river, before emptying into the sea, is cut by rapids where the inland plateau falls away to form the coastal plain.

The Brazilian government is now building a large hydroelectric project at Paulo Alfonso which will take advantage of these rapids on the Sao Francisco River.

Juazeiro is only nine degrees south of the equator with a yearly average temperature of about 80 deg F. The area is considered to be one of the most inhospitable regions in Brazil from the standpoint of living conditions, and there is practically a total absence of rain.

Superstructure of the bridge was designed and built by the French firm of Campenon Bernard, Paris. Foundations were designed and built by Estacas Franki, Ltd., Rio de Janeiro. The work was carried out for the Brazilian government railway section, Departmento Nacional de Estradas de Ferro.

(*International continued on page 62*)

PETER KIEWIT SONS' CO. SELECTS THE...

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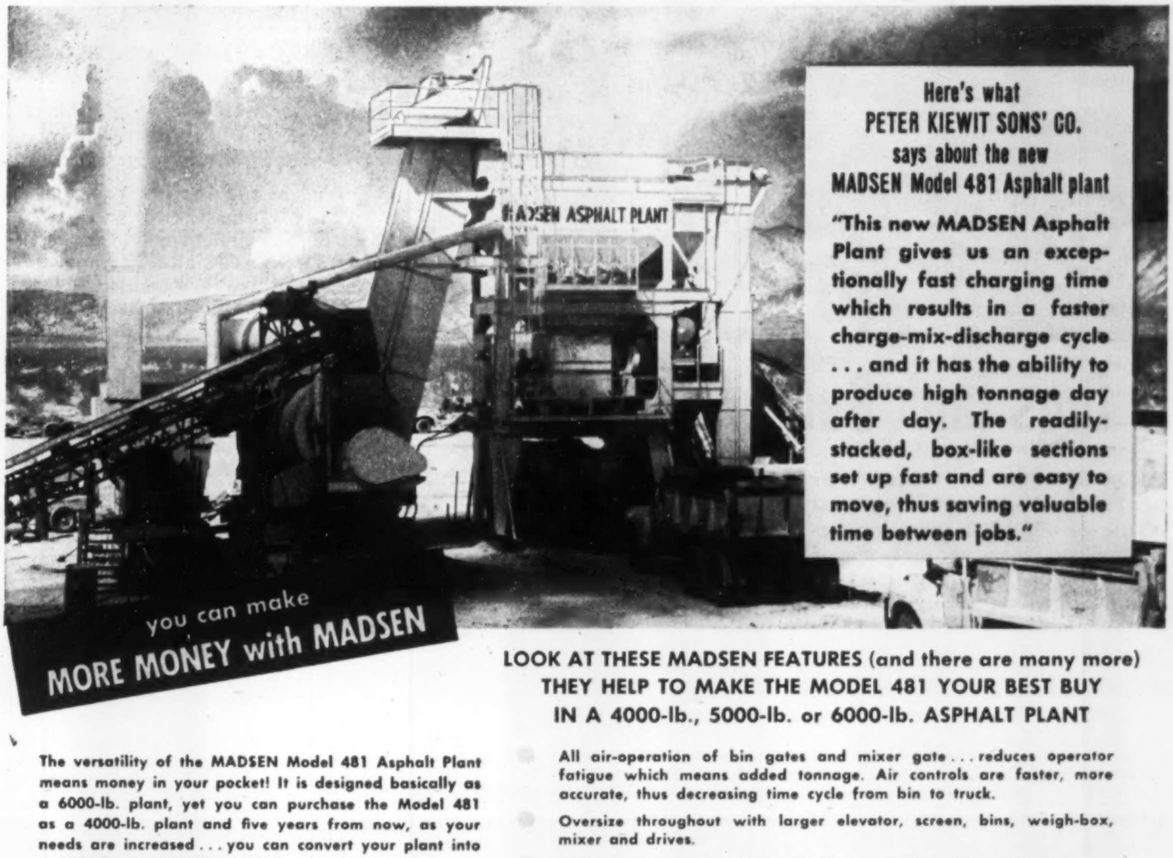
MODEL 481 ASPHALT PLANT

...to handle the strict mix specifications and speed required on today's highway and airbase jobs



Here's what PETER KIEWIT SONS' CO. says about the new MADSEN Model 481 Asphalt plant

"This new MADSEN Asphalt Plant gives us an exceptionally fast charging time which results in a faster charge-mix-discharge cycle . . . and it has the ability to produce high tonnage day after day. The readily-stacked, box-like sections set up fast and are easy to move, thus saving valuable time between jobs."

you can make
MORE MONEY with MADSEN

The versatility of the MADSEN Model 481 Asphalt Plant means money in your pocket! It is designed basically as a 6000-lb. plant, yet you can purchase the Model 481 as a 4000-lb. plant and five years from now, as your needs are increased . . . you can convert your plant into a 5000-lb. or 6000-lb. asphalt plant by making only minor modifications. Thus, you can increase your plant's production capacity with very little additional cost.

HELPING TO BUILD THE HIGHWAYS OF THE WORLD
MADSEN
Since 1910

Photo above shows the MADSEN Model 481 Asphalt Plant in operation on a Navy project. Plant is in full operation, delivering top tonnage operating on a dry and wet mix cycle, with automatic weighing, and timing equipment controlling each batch.

LOOK AT THESE MADSEN FEATURES (and there are many more) THEY HELP TO MAKE THE MODEL 481 YOUR BEST BUY IN A 4000-lb., 5000-lb. or 6000-lb. ASPHALT PLANT

- All air-operation of bin gates and mixer gate . . . reduces operator fatigue which means added tonnage. Air controls are faster, more accurate, thus decreasing time cycle from bin to truck.
- Oversize throughout with larger elevator, screen, bins, weigh-box, mixer and drives.
- Exclusive bin design (Patent Pending) . . . eliminates segregation.
- MADSEN Pressure Injection System (Patent No. 1987243) . . . the asphalt is pumped into the mill in 5 to 7 seconds!
- Portable design with built-in gooseneck, fifth wheel plate, king pin and rear axle mounting brackets.
- Generous use of adequate gear head motor units . . . fully enclosed anti-friction bearing gear box on mixer drive.

GET THE COMPLETE STORY ON THE MADSEN 481 TODAY WRITE FOR YOUR COPY OF BULLETIN NO. 800

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Equipment that Serves ®

CLEVELAND DAM in British Columbia, rises 325 ft from canyon bottom.

Canadian water supply dam to be completed this summer

Wedged into a narrow rocky canyon on the Capilano River, British Columbia, the $10-mililon, 325-ft high Cleveland Dam is scheduled for completion this summer. When totally developed the project will provide a maximum flow of more than 200 mgd for the Greater Vancouver Water District.

The dam is 640 ft along the crest and features a ski jump-type of spillway. Work started in 1951 when rock faults, cracks and interstices in the canyon rock had been pressure grouted to obtain a solid foundation.

Concrete was placed in 5-ft lifts and temperature control was maintained by circulating water through pipes embedded in the concrete.

An impervious clay blanket 10 to 20 ft thick was placed on the upstream abutments to prevent possible percolation through pervious strata in the east abutment area. A grout curtain is also being developed through the east abutment area to decrease the permeability of sand and gravel strata.

The diversion tunnel with a 32-ft horseshoe section is approximately 950 ft long. Slide gates and two jet valves, each 60 in. in dia, are to be installed in the tunnel to give complete control of water in the reservoir. Provision has also been made for development of sufficient energy by turbo pumps to raise water to tanks 175 ft above the dam crest. This water would supply areas above the dam and be used for cleaning screens in the dam.

J. L. Savage & Associates, Denver, Colo., are consulting engineers, while detailed design is handled by the B. C. International Engineering Co., Ltd., Vancouver. Contractors on the project are Gilpin Construction Co. associated with Bay Construction, Seattle, Wash.

Digs Tank Bed in Hard Rock

IN DALLAS, TEXAS, a formation of hard white rock was encountered on the site of a 2,000,000 gallon prestressed concrete water tank, one of the largest of this type in the U.S. The rock bed was so hard it posed a real excavation problem for Whittle Construction Co.

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This job is only one of hundreds of unusual applications that have proved time and again over 30 years the outstanding toughness and versatility of CLEVELANDS—and their ability to dig *more trench in more places at less cost* for you.

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When a Tylox Gasket is thus *enclosed* and *compressed,* and buried under ground, it is protected from oxidation. It *stays* flexible and is virtually ageless.

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REXON COATING NO. 2 PROTECTS SEWER AND DRAIN PIPE WHERE CORROSION IS EXTREME . . .

Concrete pipe safely handles corrosives in 90 percent or more of sewerage and drainage installations. For installations where corrosion is extreme, such as those disposing of certain industrial wastes, or where the line will run through unusually corrosive soils, REXON Coating No. 2 provides additional protection for the pipe, both inside and out. REXON is self-vulcanizing and resistant to virtually all acids, alkalies, oils, greases and solvents. It is easily and quickly applied by brushing or spraying on the pipe.

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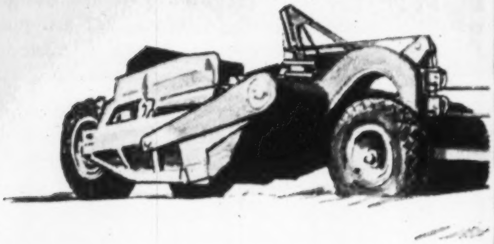

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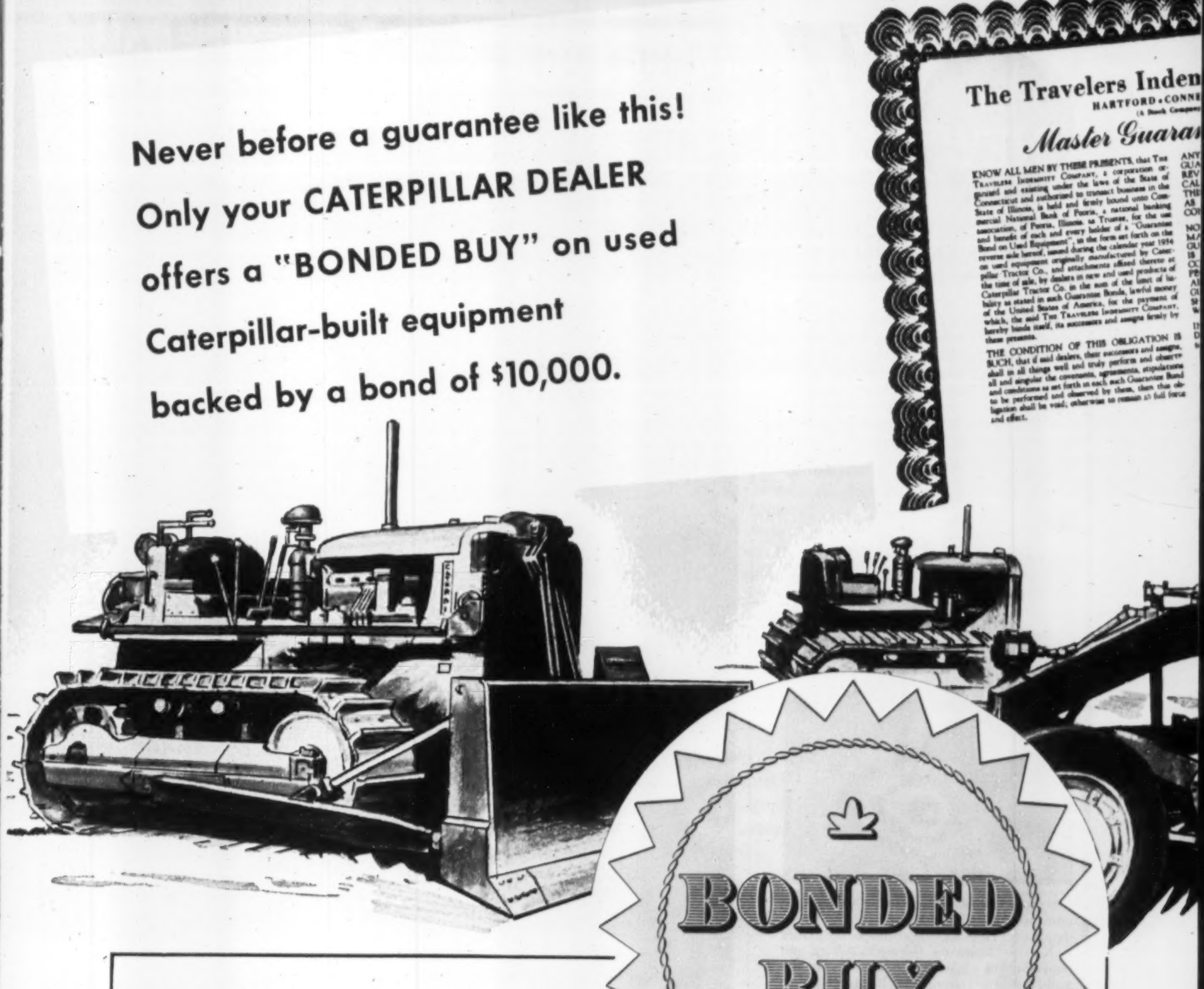

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KNOW ALL MEN BY THESE PRESENTS, that The Travelers Indemnity Company, a corporation organized and existing under the laws of the State of Connecticut and authorized to transact business in the State of Illinois, is held and firmly bound unto Commercial National Bank of Peoria, a national banking association, of Peoria, Illinois, as Trustee, for the use and benefit of each and every holder of a "Guarantee Bond on Used Equipment", in the form set forth on the reverse side hereof, issued during the calendar year 1954 on used equipment originally manufactured by Caterpillar Tractor Co., and attachments affixed thereto at the time of sale, by dealers in new and used products of Caterpillar Tractor Co. in the sum of the limit of liability as stated in each Guarantee Bonds, lawful money of the United States of America, for the payment of which, the said The Travelers Indemnity Company, hereby binds itself, its successors and assigns firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if said dealers, their successors and assigns, shall in all things well and truly perform and observe all and singular the covenants, agreements, stipulations and conditions as set forth in each such Guarantee Bond to be performed and observed by them, then this obligation shall be void; otherwise to remain in full force and effect.

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Your Caterpillar Dealer offers you three clear-cut classes of used equipment. He backs each one in writing. You buy with confidence, sure that the equipment is honestly described. See him for the best used values on the market:

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what's NEW in Engineering

A carbon dating process developed by the University of Manitoba is said to make it possible to date — within 10 years of actual age — any matter containing radioactive carbon from as far back as 40,000 years. A liquid scintillator is used. The material to be dated is incorporated in the liquid. There it sets up light flashes which are measured by an electronic eye. The sample is destroyed in the testing process.

Pre-cast, tilt-up walls, soil testing and analysis, uniform spacing of bays and a dead level roof all played important roles in Kaiser Engineers' research, design and construction of Westinghouse's newest — and largest — commercial lighting fixture plant. The result: a building suited in every respect for its intended purpose, and one constructed at an unusually low cost per square foot. For further information on this and other major Kaiser Engineers' projects, write us at the address below.

A cold weather blow torch, weighing just 6½ ounces, is claimed to operate efficiently at temperatures down to −70F. The torch pre-heats its own combustion air and a separate tank supplies fuel.

Widely diversified engineering talents and experience are available to every Kaiser Engineers' project. Departments include civil, structural, electrical, mechanical, architectural, process and production, mining and geology, metallurgical and chemical — and all work closely together. Call or write to Kaiser Engineers Division of Henry J. Kaiser Company, Kaiser Building, Oakland 12, California.

MEN AND JOBS

ENR photo by Compton

Washbourne upgraded in AF

A reorganization of construction authority in the Air Force gives it a much higher priority and rank than it has had. Reason: Belief of top brass that construction problems have been suffering in comparison with procurement, personnel, and the like.

Maj. Gen. Lee B. Washbourne has been upgraded to Assistant Chief of Staff for Installations. He had been director of installations. The new job puts him closer to Gen. Nathan F. Twining, Chief of Staff, and saves one step in the process of getting things done. Now he won't have to report to the deputy chief for operations—something of a relief for that overloaded officer, too.

Washbourne's old Directorate of Installations has been broken down into three jobs. Now he'll have three directors reporting to him, instead of seven division chiefs. The three new directorates are real property, construction and facilities support (including family housing). They replace the former seven units: architectural and engineering division, construction division, family housing group, maintenance division, management engineering group, planning and programming

(*Continued on page 68*)

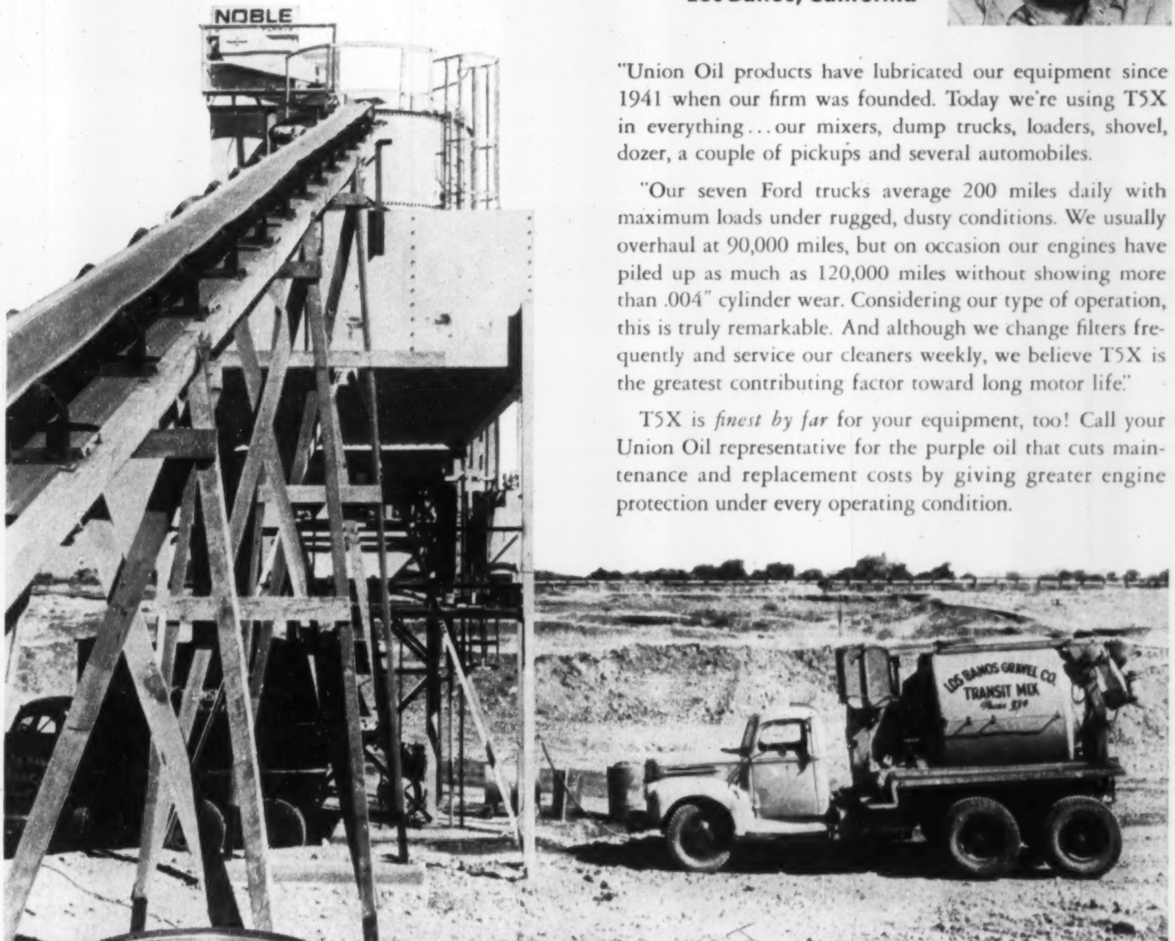
"We believe **T5X** is the greatest contributing factor toward long motor life."

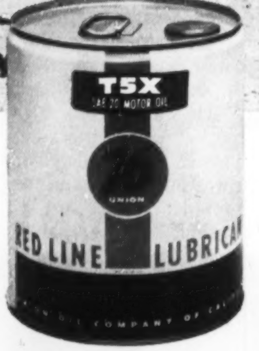
Frank Buffuna, Jr.
Los Banos Gravel Co.
Los Banos, California

"Union Oil products have lubricated our equipment since 1941 when our firm was founded. Today we're using T5X in everything . . . our mixers, dump trucks, loaders, shovel, dozer, a couple of pickups and several automobiles.

"Our seven Ford trucks average 200 miles daily with maximum loads under rugged, dusty conditions. We usually overhaul at 90,000 miles, but on occasion our engines have piled up as much as 120,000 miles without showing more than .004" cylinder wear. Considering our type of operation, this is truly remarkable. And although we change filters frequently and service our cleaners weekly, we believe T5X is the greatest contributing factor toward long motor life."

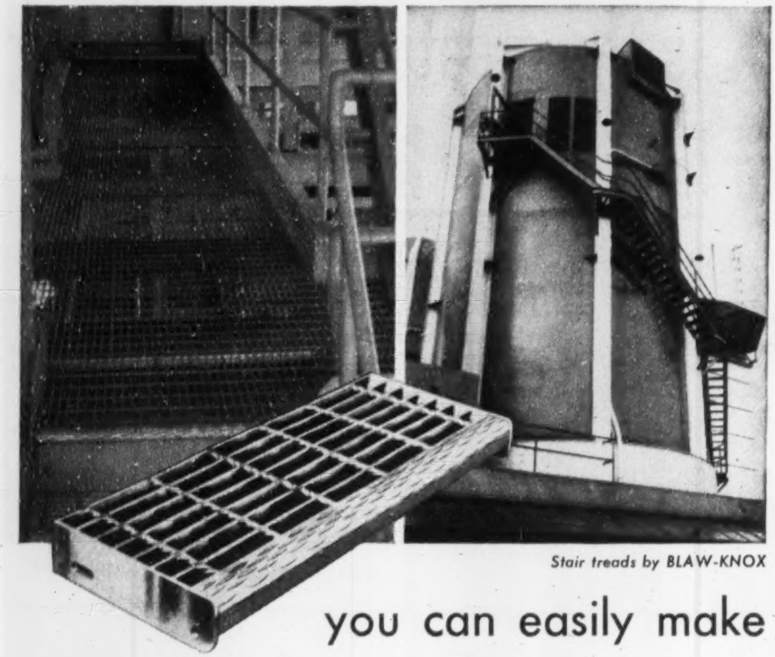
T5X is *finest by far* for your equipment, too! Call your Union Oil representative for the purple oil that cuts maintenance and replacement costs by giving greater engine protection under every operating condition.





UNION OIL 76 COMPANY
OF CALIFORNIA

LOS ANGELES: Union Oil Bldg. • NEW YORK: 45 Rockefeller Plaza • CHICAGO: 1612 Bankers Bldg.
NEW ORLEANS: 644 National Bank of Commerce Bldg. • ATLANTA: 401-02 Atlanta National Bldg.



Stair treads by BLAW-KNOX

you can easily make

every step a safe step

Indoor or outdoor, you can rely on Blaw-Knox Stair Treads to provide the safety you want in your plant.

Designed for tremendous strength against impact, these stair treads are made with twisted cross bars and rolled diamond checkered plate nosing—as illustrated.

But, when desired, you can get treads with a twisted cross bar nosing or an abrasive nosing. And for specially slippery conditions we can supply you with serrated cross bar treads.

Just tell us what your application is and we'll offer our recommendations as to the best type of tread for your job.

Only Blaw-Knox Electroforged® Steel Grating and Stair Treads —have these five exclusive features:

BLAW-KNOX
STEEL
GRATING
TREADS

1. rigid one-piece construction—easy to install
2. all surfaces accessible—easy to paint
3. no sharp corners to clog—self-cleaning
4. maximum open area—for light and ventilation
5. non-slip twisted crossbar—safe footing

A short note will bring you a copy of new Bulletin No. 2365-R —a dimensional sketch will bring you a quotation.

BLAW-KNOX

BLAW-KNOX COMPANY
2001 Farmers Bank Building • Pittsburgh 22, Pa.

BLAW-KNOX EQUIPMENT DIVISION
GRATING DEPARTMENT

GRATING APPLICATIONS: floors • platforms • walkways • catwalks • stair treads • fan guards • shelving • and many other uses, both outdoors and indoors, for versatile steel grating.

division, and the real estate division.

A $7-billion construction program is under way to take care of 137 wings that the Air Force schedule calls for by July 1, 1957. Construction should be complete and in operation by that date.

To be realistic, that's a paper schedule. The Air Force probably won't have 137 wings or the bases to serve them by that date, but it will be getting close to reaching the goal on both counts.

If Washbourne has control over it, the construction may even be right up where the paper planning says it should be.

So far Washbourne's upgrading has nothing to do with the proposed shift of Army Engineer units to the Air Force; a move still pending in the office of Defense Secretary Charles E. Wilson. But Washbourne will have control over the new Aviation Engineers. Here's how they fit into the picture:

They are a division of the new Directorate of Facilities Support. At present there are about 27,000 men in the division. They are entirely construction units intended to do construction jobs in wartime. Today, they are being trained for this work on such jobs as earthmoving, structural work, usually overseas. There are limits on the amount of projects they can do, since the department is supposed to do its big construction work through competitive bids by private contractors.

For example there is a brigade stationed in Europe, one in Korea, one in the U. S.

Washbourne, 48 years old, was born in Oklahoma. He was graduated from West Point in 1927 and entered the Corps of Engineers the same year. In 1930 he was graduated in civil engineering from the University of California. In 1931 he transferred to the Army Air Corps, where he has remained.

Wins photogrammetric award

Robert E. Hagenhoff, a recent engineering graduate of the University of Cincinnati, has been awarded the first Bausch & Lomb Photogrammetric Award. He was cited for his engineering report—"A Photogrammetric Mapping Project for Middletown, Ohio"—which was presented as his senior year thesis problem.

Hagenhoff is now employed in Middletown by Armco Drainage and Metal Products, Inc., the company with which he did his cooperative work while in college.

Only AUSTIN-WESTERN power graders can handle All these profit-making attachments

Bulldozer

Scarifier

Loader

V-Plow

Roller

Rotary Plow

Thanks to exclusive All-Wheel Drive and All-Wheel Steer, Austin-Western Power Graders handle front and rear mounted attachments with maximum efficiency on jobs where ordinary graders—handicapped by a "dead" front end and lack of rear steer—would suffer through loss of traction or steering control.

An unrivaled line of attachments is available for Austin-Western graders—versatile tools for those extra jobs which mean extra profits—each attachment designed for a type of work frequently done by a separate machine. No ordinary grader can handle ALL of these attachments... no ordinary grader can use ANY attachment as efficiently. *Without* attachments, the Austin-Western Power Grader works more hours each year than conventional graders... *with attachments,* its uses are multiplied and its value increased beyond that of any other grader.

Austin-Western

Power Graders • Motor Sweepers
Road Rollers • Hydraulic Cranes

BALDWIN
BLH
LIMA-HAMILTON
Construction Equipment Division

Manufactured by
AUSTIN-WESTERN COMPANY
Subsidiary of Baldwin-Lima-Hamilton Corporation
AURORA, ILLINOIS, U.S.A.

ALLIS-CHALMERS AD-40 MOTOR GRADER GIVES YOU

Capacity

TO MOVE THE BIG LOADS

The Allis-Chalmers AD-40 Motor Grader is designed with the power, strength and performance features for BIG output in any going.

Full 104 brake hp. engine with power and speed to give maximum production on every heavy-duty grading job.

Famous ROLL-AWAY moldboard moves more material with less power output because it rolls the load.

Plenty of strength in the heavy-duty clutch, transmission and final drive backs up the big blade capacity, while the exclusive single member tubular main frame absorbs the stress of large loads.

Power steering absorbs wheel shock, helps operator keep machine "on grade" with minimum effort.

High clearance at front axle and under circle means capacity loads without interference.

ROLL-AWAY is an Allis-Chalmers trademark.

Control

FOR FINISHING TO THE BLUE TOPS

The AD-40 is outstanding in the stability and full, precise control it offers for close tolerance work.

"Pilot house" visibility lets operator see the front wheels and both ends of the blade while sitting or standing.

Operator "feel" for the close finish work comes with mechanical linkage used on the AD-40.

Smooth, easy control with hydraulic steering, faster speed selection with constant mesh transmission, positive hydraulic brakes — all help the operator do a better job.

Blade work is accurate, smooth because front-mounted lift cases eliminate long lift-arm shafts that twist or wind up under load. Tandem drive and shock-absorbing frame add to stability, help prevent blade chatter.

Full range of blade positions plus leaning front wheels permit handling all types of grading with ease.

Operator conveniences include adjustable seat and steering wheel, roomy platform, easily reached controls, full-view instrument panel.

HUGS BANKS AND STEEP GRADES

The AD-40's low center of gravity lets you grade on steep slopes. Proved engineering design keeps grader weight close to the ground . . . gives hugging ability second to none. Plenty of traction and extra stability resist side thrust . . . add to maneuverability.

In addition to the production and control advantages the AD-40 offers, exclusive repair and maintenance accessibility features make it the easiest grader to service. Why not see your Allis-Chalmers dealer for the complete story — or better yet, let him demonstrate the AD-40 right on your own job.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS

Underpinning piles act as soldier beams
No release of load while wedging is being done
Easy access speeds progress, cuts costs

Project: Bell Telephone Laboratories Addition, Murray Hill, N. J.

General contractor: Mahony-Troast Construction Co., Clifton, N. J.

Architects: Voorhees, Walker, Foley & Smith, New York

PRETEST UNDERPINNING PREVENTS SETTLEMENT IN TUNNEL JOB

To construct a bus terminal, a tunnel was needed beneath this Bell Telephone Laboratory housing delicate instruments. Routine methods offered no answer. The architects called upon Spencer, White & Prentis, who solved the problem speedily and economically with Pretest Underpinning — a method originated by this firm.

The essential difference between Pretest Underpinning and other methods is that in Pretest Underpinning the transfer of the load from the foundation to the underpinning cylinder is done with the full test load maintained on the cylinder by the hydraulic jacks. Even during wedging, the full load is maintained. This method of transferring the load is the Pretest feature which eliminates the damaging settlement inherent in other methods.

CATALOGUE ON REQUEST

FOUNDATIONS • PILING • UNDERPINNING • SHORING • COFFERDAMS • SPECIAL SERVICES

SPENCER, WHITE & PRENTIS INC

10 EAST 40TH STREET, NEW YORK 16, N. Y.
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IN CANADA: SPENCER, WHITE & PRENTIS OF CANADA, LTD.
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OBITUARIES

Harold T. Rudgal, 51, vice-president and general manager of the Gary-Hobart Water Corp., Gary, Ind., died Feb. 25 in Philadelphia, Pa. In 1925 Mr. Rodgal took a degree in municipal engineering at Drexel Institute of Technology, Philadelphia. Until 1940 he was assistant engineer and resident engineer for the Alvord, Burdick and Howson Co., Chicago. Later he was superintendent of the sewage treatment plant and water department at Kenosha, Wis.

William Chester Campbell, 67, civil engineer, died March 19 at Orange, Tex.

John Marion Wilson, 80, retired civil engineer, died March 22 at Denton, Md. He was a graduate of Lehigh University, Class of 1895, and was a former employe of the American Bridge Co., Philadelphia, Pa.

Allen T. Brown, Sr., president of the Syracuse, N. Y., construction company that bears his name, died March 23. At one time he was vice-president of the Shane Construction Co.

Edward M. Ashworth, who retired two years ago as general manager and chief engineer of the Toronto Hydro Electric Commission, died March 25. He was associated with the founder of the Ontario Hydro, Sir Adam Beck.

Frank L. Blum, 62, president of Frank L. Blum and Co., Winston-Salem, N. C., construction firm, died March 23. The firm which he established in 1923 has built many business and industrial buildings, schools, hospitals and institutional structures.

Big share to New York City

Arterial highways within New York City are scheduled to receive the larger part of the Empire State's $50-million appropriation for arterial construction in 14 cities.

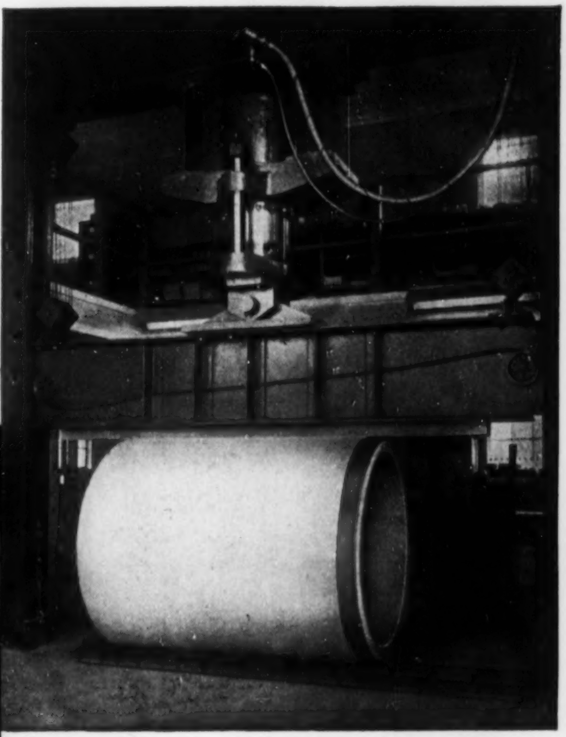
$14 million of the city's $26-million share will be spent for the completion of the Major Deegan Expressway, connecting the city with the New York State Thruway.

Other projects slated are the Cross-Bronx Expressway, and work proposed on the Horace Harding and Brooklyn Queens Expressways.

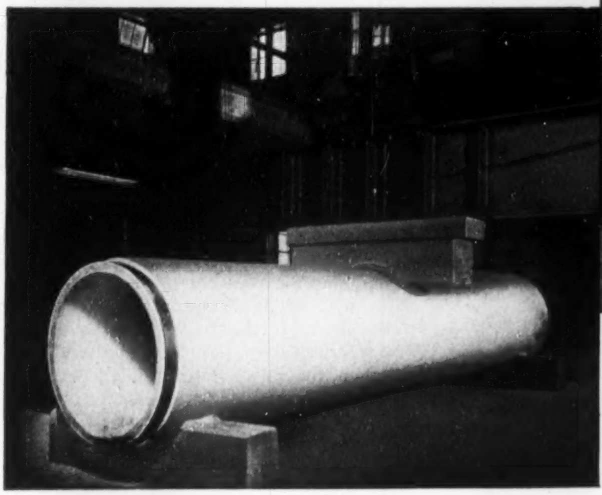
Bertram D. Tallamy, Superintendent of Public Works, hopes also to start work this year on the New England Thruway section in the Bronx, and on grade elimination structures.

test after test assures the best

IN LOCK JOINT CONCRETE PRESSURE PIPE



▲ *Three edge bearing test in 300,000 pound capacity testing machine.*



◀ *Determining a pipe's beam strength in 300,000 pound capacity testing machine.*

Do you have conclusive proof of the fundamental characteristics of the pipe you intend using in your next water works project? Are you certain of its advantages? Do you recognize its limitations?

• • •

In Lock Joint's laboratory at Wharton, N. J. all guess work has been eliminated. Here, Lock Joint Pipes of all types and designs are tested to determine the exact extent of their ability to withstand back loads, beam loads and internal pressures. The most efficient modern equipment in the hands of highly trained personnel is used to give a tangible, practical demonstration of the high quality built into every type of Lock Joint Pipe.

• • •

These constant tests of our products are your assurance that, in its field, no finer pressure pipe than Lock Joint can be produced. Built in diameters from 16″ upward and designed for any pressure common to water works practice, these pipes will serve you unfailingly for generations.

SCOPE OF SERVICES—*Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains 16″ in diameter or larger, as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.*

LOCK JOINT PIPE COMPANY
Established 1905
P. O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich., Columbia, S. C.
SEWER & CULVERT PIPE PLANTS:
Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. • **Kansas City, Mo.** **Valley Park, Mo.** • Chicago, Ill. • **Rock Island, Ill.** • **Wichita, Kan.** **Kenilworth, N. J.** • **Hartford, Conn.** • **Tucumcari, N. Mex.** • **Oklahoma City, Okla.** • **Tulsa, Okla.** • **Beloit, Wis.** • **Hato Rey, P. R.** • **Caracas, Venezuela**

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

Drawings ready– prints ready!

From final drawings to plenty of prints, for production or record...is only a matter of minutes when you have an Ozalid® machine on the premises.

Ozalid reproduction is chemical, instantaneous, without delays between exposure, developing, drying. No intricate adjustments, messy developing solutions, drying equipment, or skilled operators are necessary. Anybody can use an Ozalid.

Ozalid makes copies from anything drawn, written, typed, or printed on translucent material—not only on paper, but plastic surfaces, fabrics, foil as well, in a variety of colors. The finished copies are dry, exact in size. *And cost very little.*

AND the same machine will make duplicates of correspondence, specifications, reports, forms, orders, invoices. You save time, and your prints cost less when you have an Ozalid.

The Ozalid process, machines, and papers are uniform, consistent, dependable. Ozalid service is never far away.

To find out what Ozalid can do for you, call the Ozalid office or distributor listed in your phone book. Or write for full information —to 140 Ozaway, Johnson City, New York.

Ozalid Printmaster *—copies material up to 54 inches wide, at speeds to 30 feet per minute; has low maintenance; is easy to operate; saves time, trouble, and costs.*

OZALID

A Division of General Aniline & Film Corporation
... From Research to Reality
In Canada, Hughes Owens Company, Ltd., Montreal

BOOKS

Soil mechanics

EARTH PRESSURE CALCULATION—By Jorgan Brinch Hansen. 270 pp. Danish Technical Press, Engineering House, Copenhagen V, Denmark. In English, with Danish summary. Obtainable from Stechert-Hafnor, Inc., 31 East 10th St., New York, N. Y. $5.00.

This book covers the subject of earth pressure completely from two approaches: A scientific analysis or evaluation, with proper credit to prior developments, and a guide to engineering design of structures that sustain soil pressures. This treatment may result in the complaint that there is too much theory, or—from the other side of the fence—that too many assumptions are made to obtain a usable design method.

The reviewer, however, agrees with the author that both approaches are necessary. The reader can use the one that appeals to him most—the scientific study of soil action and failure, or applications to practical designs. In the former case, a true description of soil behavior is desired; in the latter, safety and economy of approximate solutions are sufficient.

The author is well qualified to treat this subject from the two viewpoints. As chief engineer of the internationally known contracting firm, Christiani & Nielsen, he is known for his excellent designs of unusual structures, foundations and waterfront works. He also has established a reputation for clear technical writing on the science of soil mechanics.

Since the structures under study in this book are statically indeterminate, and soil loads are in many ways dependent upon the distortions or movements of the finished structure, the author quite properly chose the state-of-failure method for determining pressures and required resistance. He introduces safety factors in the analysis by taking proportional values of known or measured soil characteristics instead of ultimate values.

The other approach to the problem is to analyze the statical stability of parts or the whole structure, with the restricted stresses chosen by application of the desired safety factor to the ultimate stresses for the various materials composing the structure. This is an empirical method, since some geometry assumptions must be made.

The author's method cannot determine existing stresses in the structure under working conditions, only those at failure. However, stresses

(Continued on page 81)

TELSMITH design and equipment

...meet all deposit and market conditions

TELSMITH Style S Gyrasphere Crusher

TELSMITH Super-Scrubber and Vibro-King Screen

TELSMITH Sand Classifier and Sand Drag

● **Carl Stander,** well known Ohio asphalt man and owner of the Fredericktown Sand & Gravel Co. plant at Fredericktown, Ohio, had many pit and plant problems. Telsmith design and equipment solved them; thanks to an excellent job done by a Telsmith Super-Scrubber and other Telsmith equipment.

This plant produces about 125 to 175 tons per hour—making 4 sizes of gravel and 2 grades of sand at any one time, all meeting Ohio State specifications for asphalt and concrete. In freezing weather, the full crushing capacity of Telsmith Jaw and Gyrasphere Crushers is used to make minus ¾″ crusher-run without operating the washing plant.

Here again Telsmith modern design and equipment produce low cost, quality aggregate. *Get Bulletin* 266.

G-23

TELSMITH

Equipment in this Plant

Two 30″x5′6″ Standard Plate Feeders
5′x10′ Double Deck Scalper Screen
4′ x 12′ Double Deck Vibro-King Screen
36 S Gyrasphere Crusher
30″x25′ Single Screw Sand Classifier
72″x10½′ Super-Scrubber
48″x30′ Sand Drag
Four 45 yd. Steel Bins
Five Telsmith BG Belt Conveyors, 24″ and 18″ wide, total length about 525′

SMITH ENGINEERING WORKS, 500 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

51 East 42nd St. New York 17, N. Y.
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713 Commercial Trust Bldg. Philadelphia 2, Pa.
238 Main Street Cambridge 42, Mass.
Boehck Eqpt. Co. Milwaukee 3, Wis.
The McLean Co., 3525 Lakeside Ave. Cleveland 14, Ohio
Marens Eqpt. Co., New Hudson, Mich. ● Rish Eqpt. Co., Cincinnati 14, & Portsmouth, Ohio—Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va.
Robert S. Bailey, 816 W. 5th St., Los Angeles 17, Calif. ● Mines Eng. & Eqpt. Co., San Francisco 4, Calif. ● Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash.

Put these Detour-Busters on the job

WORKING AGAINST a 20-day deadline, contractors graded and graveled a section of state highway to eliminate a long traffic detour. Here we see one of the fast moving INTERNATIONAL TD-24 and scraper teams that did the job in a hurry.

Let INTERNATIONAL Scrapers break up the slowdowns and delays that cost you money. See how they can put you back on the main road to moving dirt on time, at lower cost.

Keep the dirt flying. That's what they are made for! Everything about these big, easy-running scrapers points in one direction:

More dirt, less time on every cycle.

And how they do it! No detours here: Fast loading of bigger payloads, with less power. Improved flotation. Easy, clean dumps. Short turning radius. Remarkable stability on slopes. Rugged, simple construction that cuts maintenance to the bone!

Choose from four sizes (10 to 27.5 yard heaped capacity) to fit your job and your power. All four have the features and strength and simplicity that speed up the cycle—keep you on schedule, or well ahead of it!

Do you have dirt to move, and cost problems staring you in the face? Then there is a man you ought to know—your IH Distributor. He handles INTERNATIONAL Scrapers and can give you all the facts and figures about them. See him for "Power that Pays."

For every move in Earthmoving

ON TRACKS ...ON RUBBER

See INTERNATIONAL'S "Job-Phased*" equipment

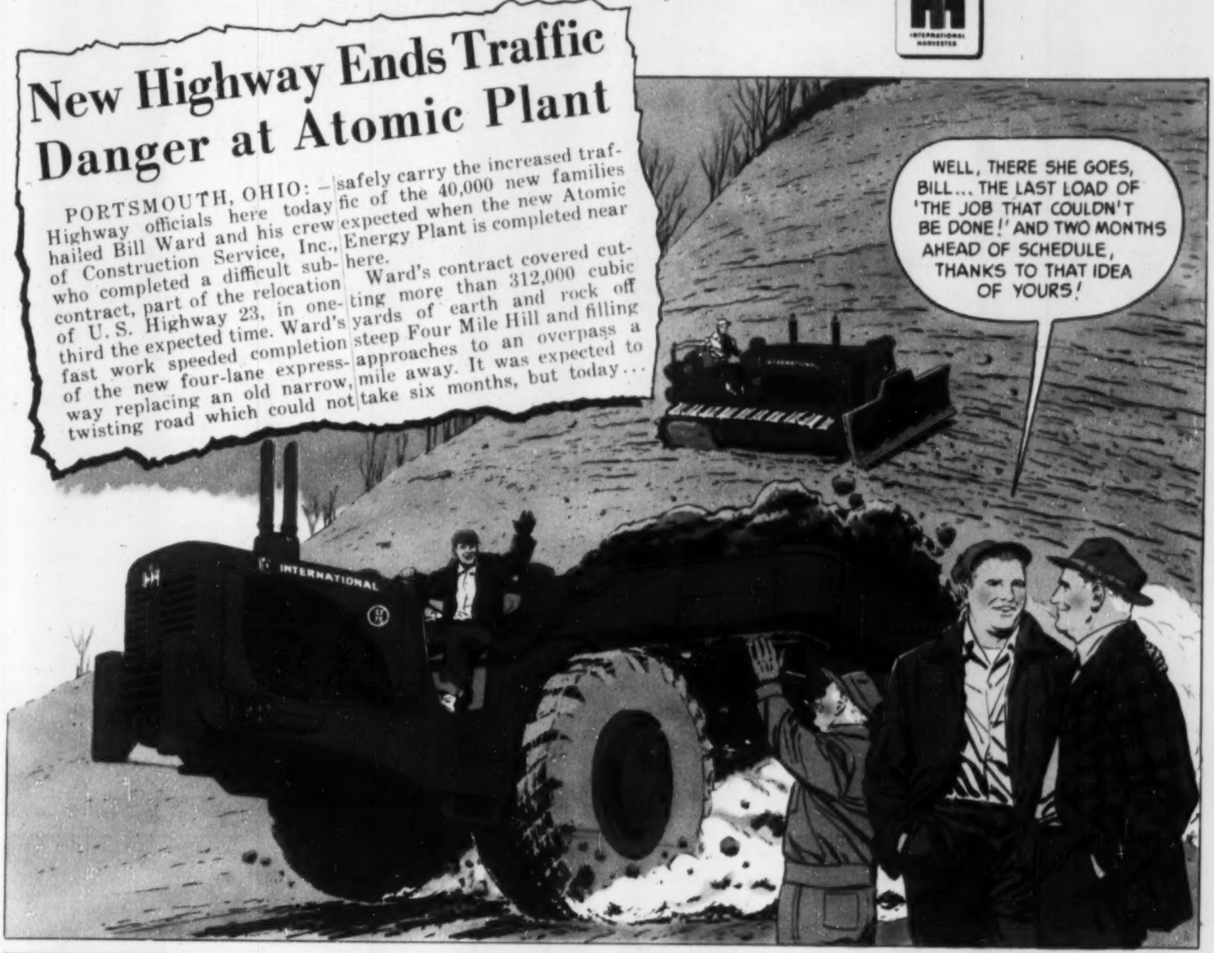
INTERNATIONAL HARVESTER

INTERNATIONAL

***Phased Equipment—Machines designed and built to handle each major phase of earthmoving most efficiently and economically.**

Wins Race With Time And Death

An Actual Job Report from

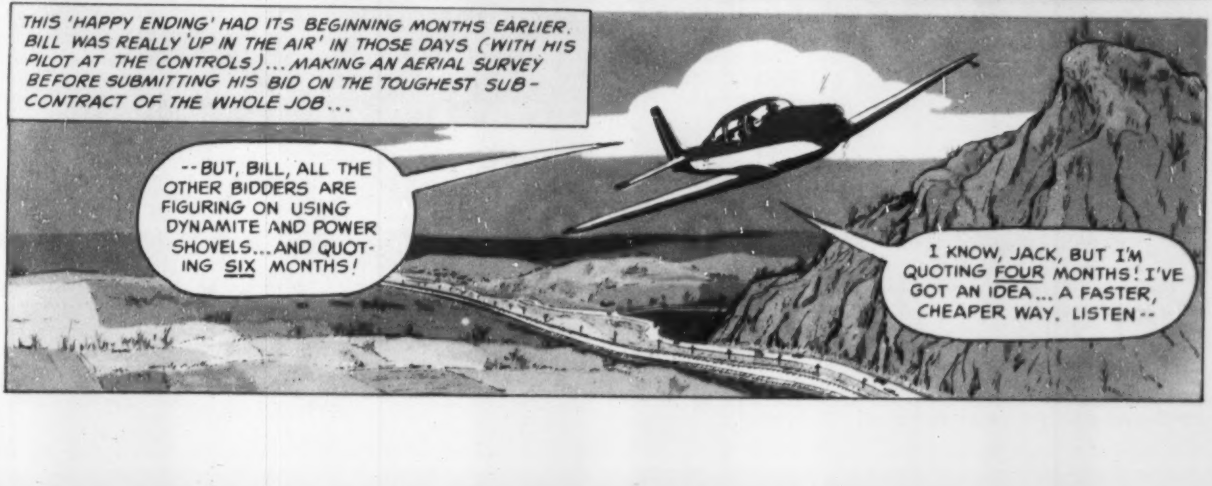


New Highway Ends Traffic Danger at Atomic Plant

PORTSMOUTH, OHIO: — Highway officials here today hailed Bill Ward and his crew of Construction Service, Inc., who completed a difficult subcontract, part of the relocation of U.S. Highway 23, in one-third the expected time. Ward's fast work speeded completion of the new four-lane expressway replacing an old narrow, twisting road which could not safely carry the increased traffic of the 40,000 new families expected when the new Atomic Energy Plant is completed near here.

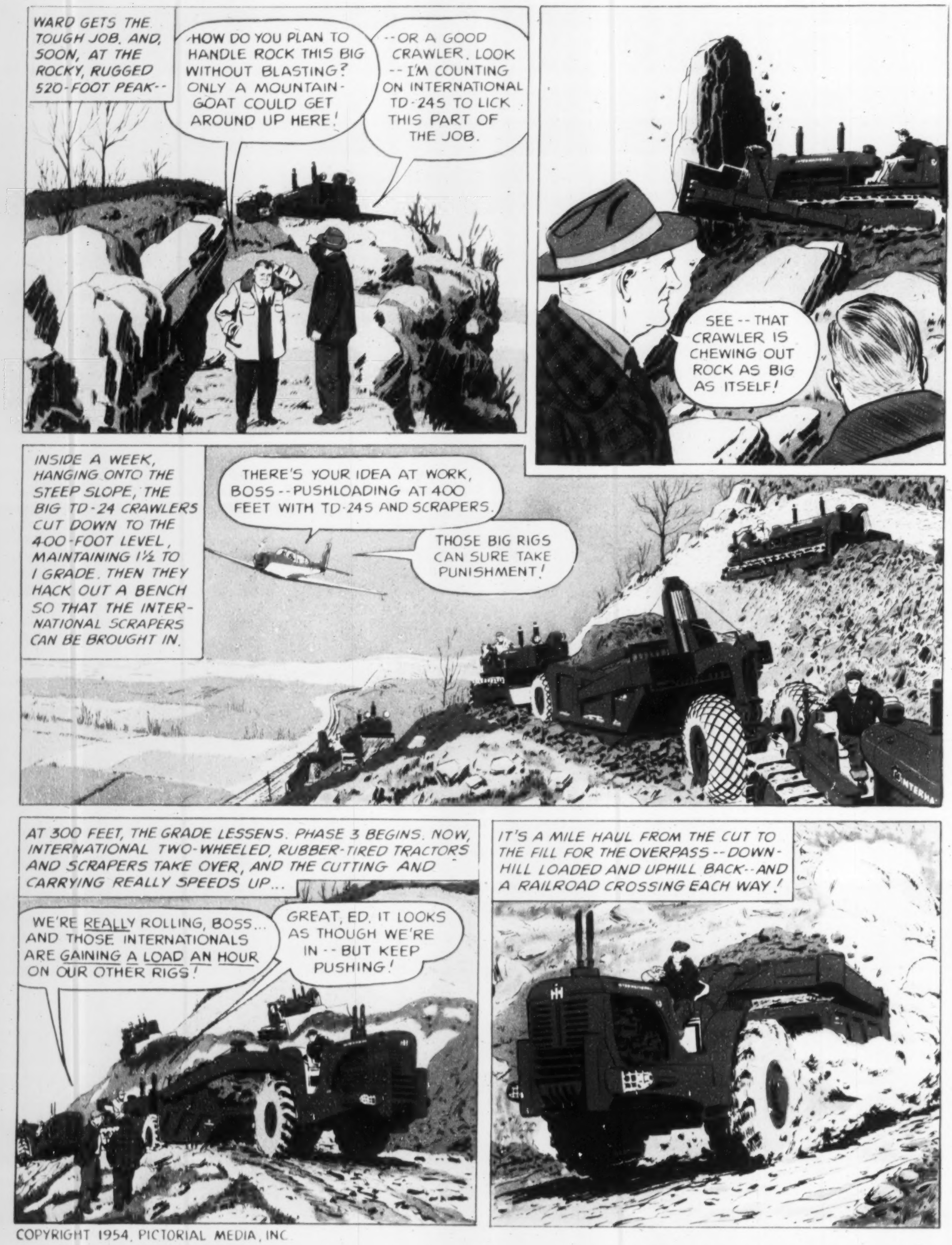
Ward's contract covered cutting more than 312,000 cubic yards of earth and rock off steep Four Mile Hill and filling approaches to an overpass a mile away. It was expected to take six months, but today...

WELL, THERE SHE GOES, BILL... THE LAST LOAD OF 'THE JOB THAT COULDN'T BE DONE!' AND TWO MONTHS AHEAD OF SCHEDULE, THANKS TO THAT IDEA OF YOURS!
INTERNATIONAL

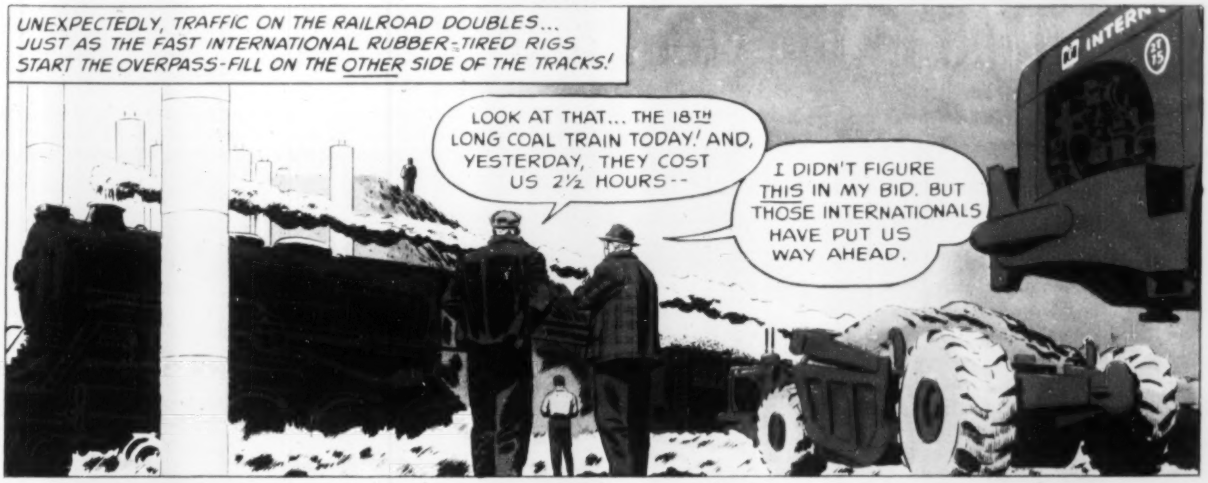


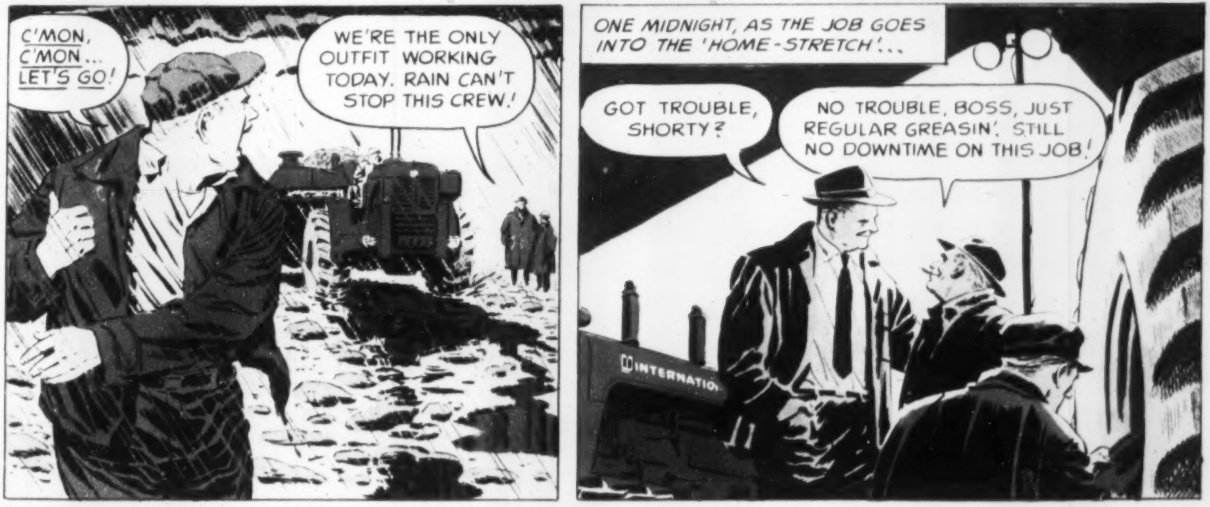
THIS 'HAPPY ENDING' HAD ITS BEGINNING MONTHS EARLIER. BILL WAS REALLY 'UP IN THE AIR' IN THOSE DAYS (WITH HIS PILOT AT THE CONTROLS)... MAKING AN AERIAL SURVEY BEFORE SUBMITTING HIS BID ON THE TOUGHEST SUB-CONTRACT OF THE WHOLE JOB...

--BUT, BILL, ALL THE OTHER BIDDERS ARE FIGURING ON USING DYNAMITE AND POWER SHOVELS... AND QUOTING SIX MONTHS!
I KNOW, JACK, BUT I'M QUOTING FOUR MONTHS! I'VE GOT AN IDEA... A FASTER, CHEAPER WAY. LISTEN--

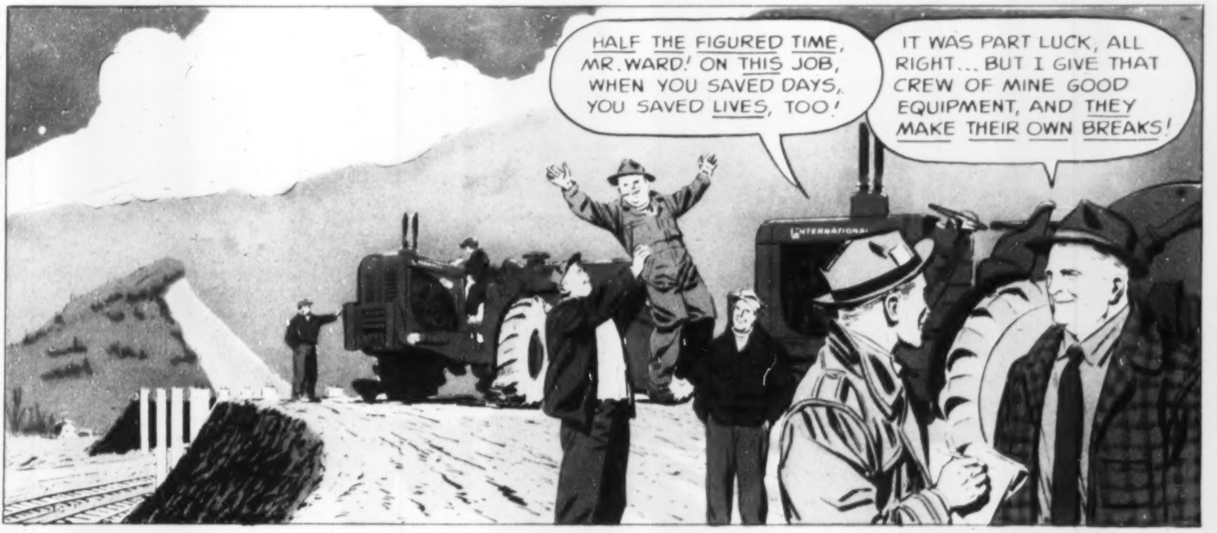

WARD GETS THE TOUGH JOB. AND, SOON, AT THE ROCKY, RUGGED 520-FOOT PEAK--
HOW DO YOU PLAN TO HANDLE ROCK THIS BIG WITHOUT BLASTING? ONLY A MOUNTAIN-GOAT COULD GET AROUND UP HERE!
--OR A GOOD CRAWLER. LOOK --I'M COUNTING ON INTERNATIONAL TD-24S TO LICK THIS PART OF THE JOB.
SEE--THAT CRAWLER IS CHEWING OUT ROCK AS BIG AS ITSELF!
INSIDE A WEEK, HANGING ONTO THE STEEP SLOPE, THE BIG TD-24 CRAWLERS CUT DOWN TO THE 400-FOOT LEVEL, MAINTAINING 1½ TO 1 GRADE. THEN THEY HACK OUT A BENCH SO THAT THE INTERNATIONAL SCRAPERS CAN BE BROUGHT IN.
THERE'S YOUR IDEA AT WORK, BOSS--PUSHLOADING AT 400 FEET WITH TD-24S AND SCRAPERS.
THOSE BIG RIGS CAN SURE TAKE PUNISHMENT!
AT 300 FEET, THE GRADE LESSENS. PHASE 3 BEGINS. NOW, INTERNATIONAL TWO-WHEELED, RUBBER-TIRED TRACTORS AND SCRAPERS TAKE OVER, AND THE CUTTING AND CARRYING REALLY SPEEDS UP...
WE'RE REALLY ROLLING, BOSS... AND THOSE INTERNATIONALS ARE GAINING A LOAD AN HOUR ON OUR OTHER RIGS!
GREAT, ED. IT LOOKS AS THOUGH WE'RE IN--BUT KEEP PUSHING!
IT'S A MILE HAUL FROM THE CUT TO THE FILL FOR THE OVERPASS--DOWN-HILL LOADED AND UPHILL BACK--AND A RAILROAD CROSSING EACH WAY!

COPYRIGHT 1954, PICTORIAL MEDIA, INC.


UNEXPECTEDLY, TRAFFIC ON THE RAILROAD DOUBLES... JUST AS THE FAST INTERNATIONAL RUBBER-TIRED RIGS START THE OVERPASS-FILL ON THE OTHER SIDE OF THE TRACKS!
LOOK AT THAT... THE 18TH LONG COAL TRAIN TODAY! AND, YESTERDAY, THEY COST US 2½ HOURS--
I DIDN'T FIGURE THIS IN MY BID. BUT THOSE INTERNATIONALS HAVE PUT US WAY AHEAD.
INTERN


C'MON, C'MON... LET'S GO!
WE'RE THE ONLY OUTFIT WORKING TODAY. RAIN CAN'T STOP THIS CREW!
ONE MIDNIGHT, AS THE JOB GOES INTO THE 'HOME-STRETCH'...
GOT TROUBLE, SHORTY?
NO TROUBLE, BOSS, JUST REGULAR GREASIN'. STILL NO DOWNTIME ON THIS JOB!
INTERNATIO

AND THEN THE WARD OUTFIT SETS ANOTHER RECORD, IN SPITE OF THE TRAINS... 8,400 CUBIC YARDS MOVED IN 9 HOURS ON AN 8,000-FOOT CYCLE, USING 7 HAUL UNITS! TWO MONTHS FROM THE STARTING DATE, THE JOB IS FINISHED, AND...


HALF THE FIGURED TIME, MR. WARD! ON THIS JOB, WHEN YOU SAVED DAYS, YOU SAVED LIVES, TOO!
IT WAS PART LUCK, ALL RIGHT... BUT I GIVE THAT CREW OF MINE GOOD EQUIPMENT, AND THEY MAKE THEIR OWN BREAKS!
INTERNATIONAL

Head in the clouds, feet on the ground

BILL WARD, owner of the Construction Service, Inc., Ludlow, Kentucky, is a man with his head in the clouds . . . but only when he's making an aerial survey of a prospective job in his four-place Navion plane. The rest of the time his feet are very firmly planted on the ground, when it comes to getting things done in the contracting business.

Starting as a shovel runner in New England for B. Perini & Sons, Inc., Framingham, Mass., Bill worked up to superintendent. In 1945 he realized an 18 year ambition by going into business for himself with a single power shovel. On the Four Mile Hill subcontract he used 20 big pieces of earth-moving equipment, including six INTERNATIONAL crawlers with matched INTERNATIONAL dozers, two INTERNATIONAL B-170 scrapers, and three INTERNATIONAL two-wheeled, rubber-tired tractors and scrapers.

He's proudest of the fact that he won the 1952 Safety Award given by the West Virginia chapter of the A.G.C. Association in the 10-20,000 man hours per year class for not having a single lost time accident. In 1953 he again finished out the year with a similar safety record. That's a real tribute to Ward, his men, and his big red INTERNATIONAL Power!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

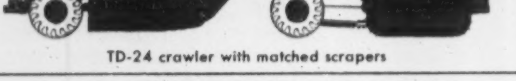
INTERNATIONAL HARVESTER

INTERNATIONAL

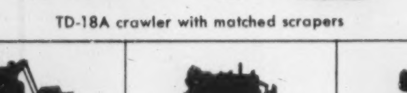
POWER THAT PAYS

Now All in One Family

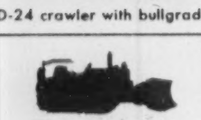
The hardest-working work teams in the world!



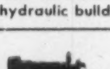
TD-24 crawler with matched scrapers



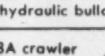
TD-18A crawler with matched scrapers



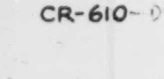
TD-24 crawler with bullgrader



T-9 and TD-9 crawler with hydraulic bulldozer



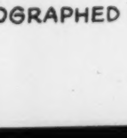
T-6 and TD-6 crawler with hydraulic bulldozer

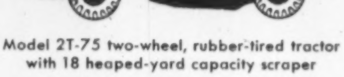


TD-14A crawler with cable bullgrader

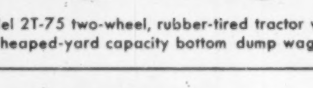
TD-9 tractor with front-end loader

TD-18A crawler with sideboom

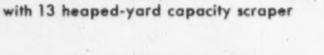




Model 2T-75 two-wheel, rubber-tired tractor with 18 heaped-yard capacity scraper



Model 2T-75 two-wheel, rubber-tired tractor with 20 heaped-yard capacity bottom dump wagon



Model 2T-55 two-wheel, rubber-tired tractor with 13 heaped-yard capacity scraper

CR-610-D 2/28

LITHOGRAPHED IN UNITED STATES OF AMERICA under working conditions can be calculated by statical analysis after the structural shape has been determined by the state-of-failure method.

The text is well illustrated with clear diagrams, which are carefully numbered with a notation that permits easy reference. Publication of the book in English, a fine job of translation, with simple and logical division of the material, makes it available to many engineers here and abroad. Inclusion of library index numbers on the title page to cover the subject matter is a European practice well worth copying in U. S. books.

This book is a must item in the library of any engineer interested in problems involving soil action.—Jacob Feld, Consulting Engineer, New York, N. Y.

Miscellaneous notes

- **Tables of high dams**—A new compilation of statistics relating to dams more than 100 ft high, the work of Robert A. Sutherland, hydraulic engineer, Ebasco Services, New York, has been issued as Separate No. 355, American Society of Civil Engineers, 33 West 39th St., New York 18, N. Y. (50¢). The principal table gives the name of each dam, its location, height, length, volume and storage capacity, also year completed.

- **Pipe fittings**—One of the most widely used standards of the American Standards Association—that for Steel Pipe Flanges and Flanged Fillings, B 16.5—1953—has just been revised and reissued. Copies may be obtained for $3.00 from the association, 70 East 45th St., New York 17, N. Y.

- **Data Sheet 72** of the Federal Housing Administration dealing with block and lot grading has been issued to field offices and is available on request. The 8-page pamphlet describes grading methods and presents plans for individual blocks and lots in a development, and a method for determining the proper elevations of house floors and key points on the land.

New engineering books

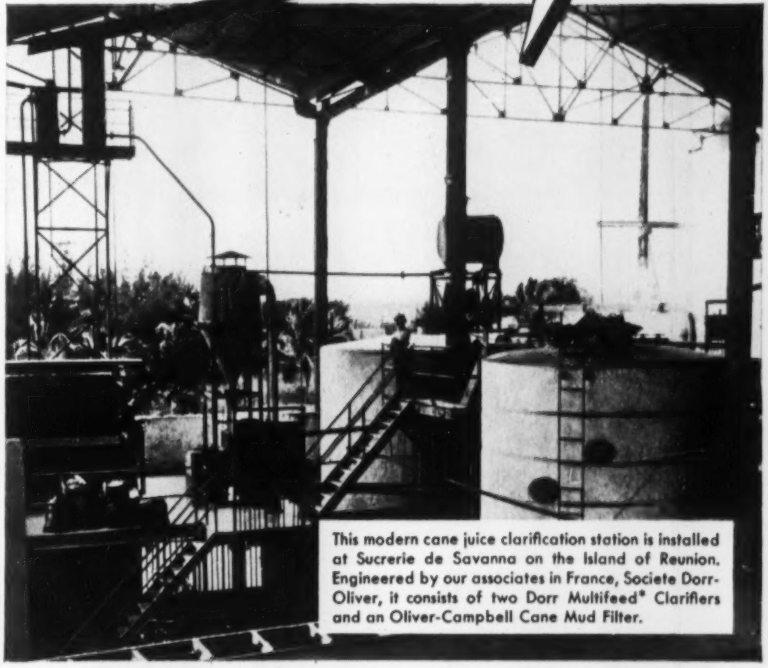
LEADERS IN AMERICAN SCIENCE—First Edition. 703 pp. Who's Who in American Education, Inc., 110 Seventh Ave., North, Nashville, Tenn. $12.00.

CONSTRUCTION METHODS AND MACHINERY—By F. H. Kellogg, 415 pp. Prentice-Hall, 70 Fifth Ave., New York 11, N. Y. $10.00.

ELECTRICAL DESIGN OF HYDRO PLANTS—

(*Continued on page* 84)

Satisfaction for your sweet tooth starts here



This modern cane juice clarification station is installed at Sucrerie de Savanna on the Island of Reunion. Engineered by our associates in France, Societe Dorr-Oliver, it consists of two Dorr Multifeed* Clarifiers and an Oliver-Campbell Cane Mud Filter.

When it comes to satisfying the craving of a "sweet tooth", you'll find Dorr equipment at work the world over. Every year, Dorr Clarifiers transform raw cane juice into 25 *billion* gallons of the clear solution that is the start of high quality cane sugar.

Chances are your interest in sugar stops with the morning coffee. But the unit operations employed in its production are basic to a host of industries . . . and yours may be one of them. Whenever a process involves the separation of finely divided particles in suspension, the use of ion-exchange, or fluidizing techniques, Dorr and its Associated Companies throughout the world can provide the correct equipment for your job.

*T.M. Reg. U.S. Pat. Off.

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For **TOUGH** assignments

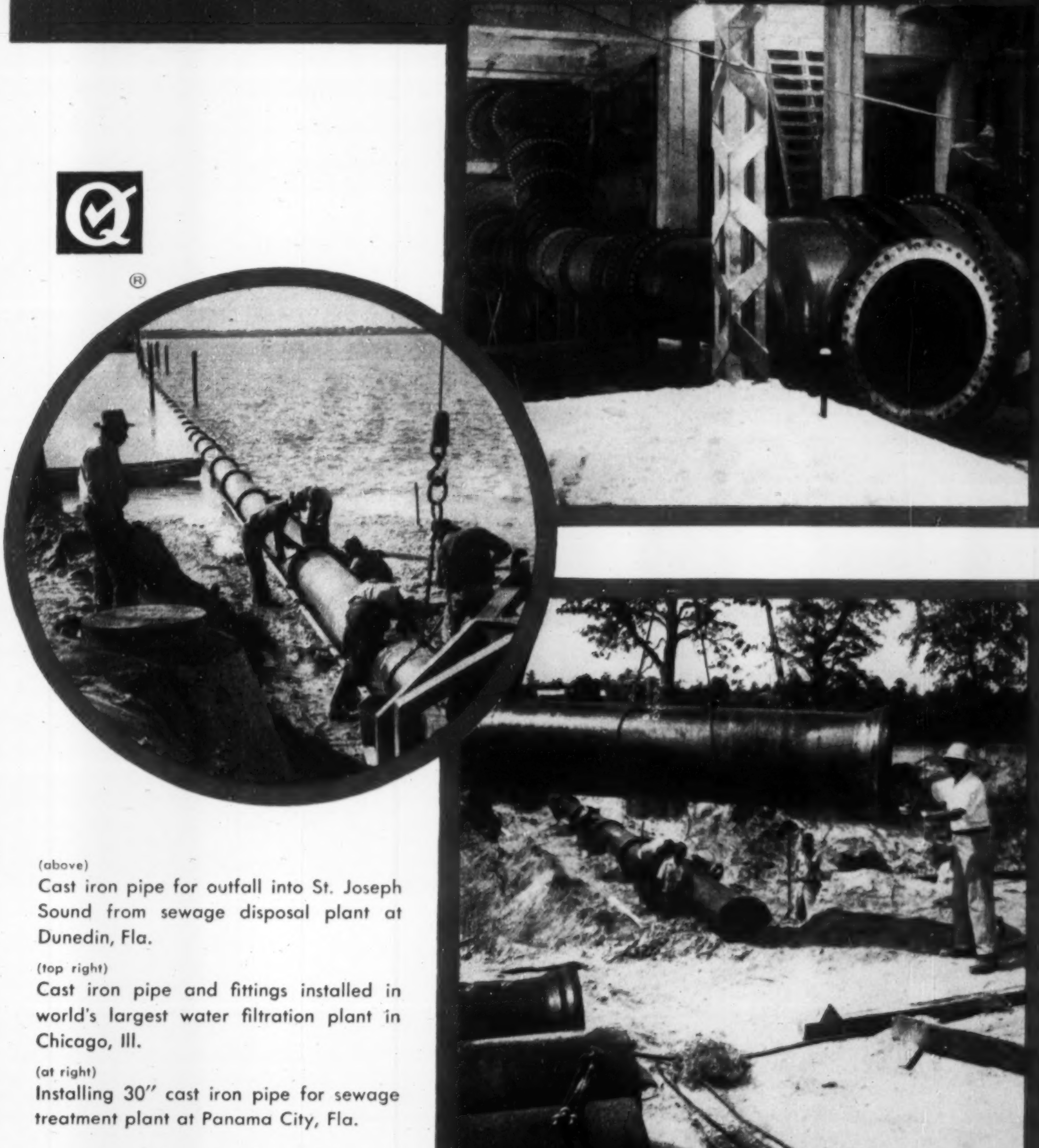
When pipe is to be installed under conditions which make repairs difficult at best, the engineering profession relies on cast iron pipe. Such installations, for example, as outfall sewers, river crossings, and sealed piping in sewage treatment and water filtration plants. *Any* installation, where repairs should be a remote possibility, calls for rugged cast iron pipe. Its great beam-strength, compressive-strength and shock-strength—plus its effective resistance to corrosion—result in long life with negligible repairs and maintenance cost. For information write: Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Avenue, Chicago 3, Ill.

(above)
Installing cast iron belt feeder main for water supply system in Casper, Wyoming.

(right)
Cast iron pipe for discharge lines from water circulating pump house in a midwest oil refinery.

CAST IRON PIPE

use this RUGGED pipe

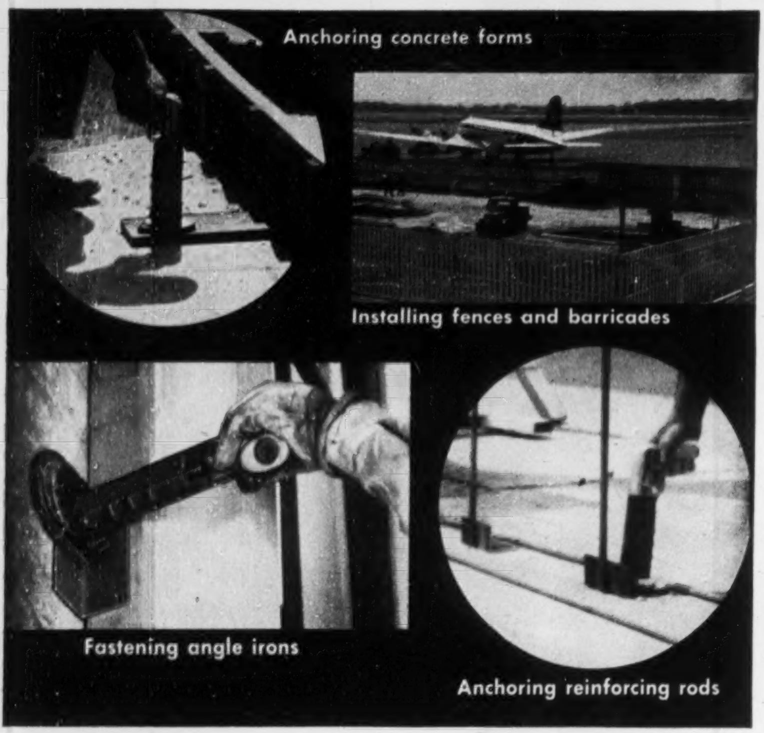


(above)
Cast iron pipe for outfall into St. Joseph Sound from sewage disposal plant at Dunedin, Fla.

(top right)
Cast iron pipe and fittings installed in world's largest water filtration plant in Chicago, Ill.

(at right)
Installing 30″ cast iron pipe for sewage treatment plant at Panama City, Fla.

SERVES FOR CENTURIES . . .



More contractors use Ramset than all other makes combined . . . because of utility, speed and economy

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The advantages of RAMSET SYSTEM are so superior that in a nationwide check of users of powder-actuated tools, 57% of contractors prefer RAMSET over all other makes combined. They like RAMSET because of:

Tools matched to the work—three sizes of RAMSET JOBMASTER Tools offer widest utility for light, medium or heavy work.

Widest range of fasteners—permitting fasteners to be closely matched to the job.

Balanced power charges—varied in strength to suit materials, tools and fasteners.

Finest field service—prompt, competent, on-your-job suggestions for fastest, easiest, lowest cost methods.

You can be sure of maximum economy and time saving by using RAMSET SYSTEM for fastening into steel and concrete. See your RAMSET dealer for demonstration or write us for details.

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Ramset Division, Olin Industries, Inc.
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FIRST IN POWDER ACTUATED FASTENING

AN Olin PRODUCT

BOOKS

Vol. 2 of Technical Report No. 24. Design of TVA Projects—449 pp. Tennessee Valley Authority, Knoxville, Tenn. $2.25.

PROCEEDINGS of the Third International Conference on Soil Mechanics and Foundations Engineering: Switzerland, 1953—Three volumes. Obtainable from the General Secretary, Gloriastrasse 39, Zurich, Switzerland, Price, 70 Swiss francs.

FORMULAS FOR STRESS AND STRAIN—By Raymond J. Roark, 381 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36, New York $7.50.

Reports and pamphlets

CHEMICAL CHARACTER OF SURFACE WATERS OF KENTUCKY: 1949-1951—Agricultural and Industrial Development Board of Kentucky, Frankfort, Ky.

WORLD ROAD STATISTICS: 1953 (Revised Edition). International Road Federation, 1035 Washington Bldg., Washington 5, D. C. $2.00.

HOUSING MARKET ANALYSIS: A study of Theory and Methods—Housing and Home Finance Agency. Obtainable from the Superintendent of Documents, Washington 25, D. C. $0.50.

ANALYSIS OF MOVING FETCHES FOR WAVE FORECASTING—Technical Memorandum No. 35 Beach Erosion Board, Washington 16, D. C.

ON OCEAN WAVE SPECTRA AND A NEW METHOD OF FORECASTING WIND-GENERATED SEA—Technical Memorandum No. 43 Beach Erosion Board, Washington 16, D. C.

BASEMENTS—Circular Series F 2.0, issued by the Small Homes Council, Mumford House, University of Illinois, Urbana, Ill. $0.10.

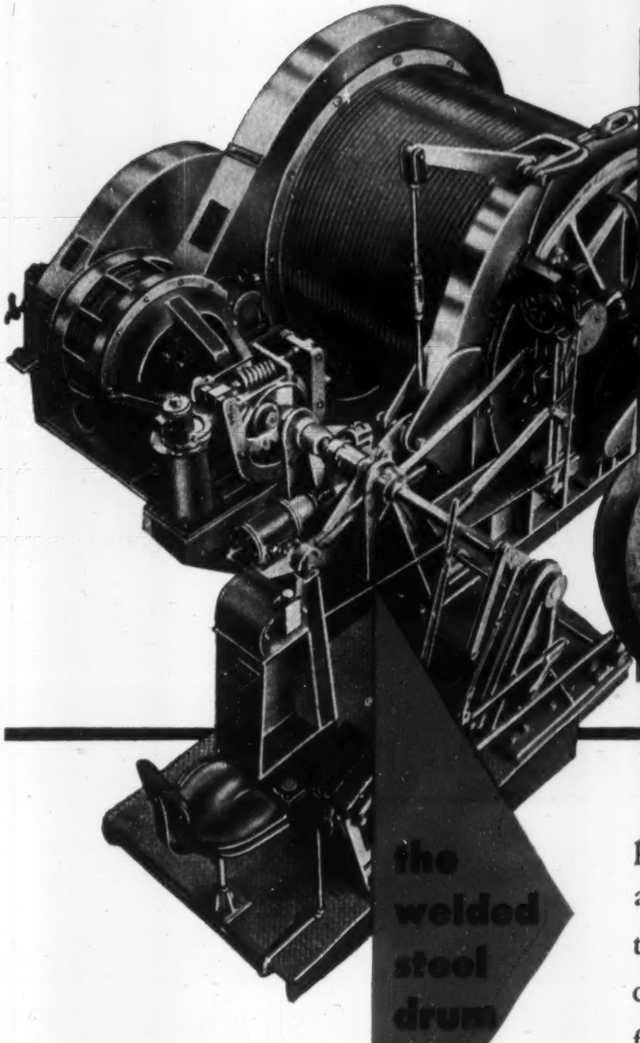
HYPOCHLORITES — Tentative Standard Specifications. American Water Works Association Inc., 521 Fifth Avenue, New York 17, N. Y. $0.20.

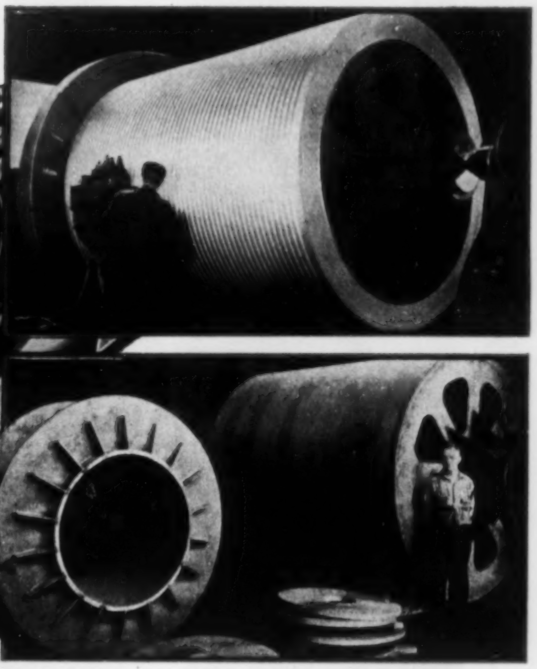
HIGHWAY USE AND HIGHWAY COSTS—A Report of the Joint State Government Commission to the General Assembly of the Commonwealth of Pennsylvania. Obtainable from the Joint State Government Commission, Harrisburg, Pa.

DESIGNING ELEMENTARY CLASSROOMS—Special Publication No. 1, U. S. Department of Health, Education, and Welfare-Office of Education, Washington, 25, D. C.

A DYNAMIC HIGHWAY POLICY FOR THE FUTURE—A Complete Report on the National Conference on Highway Financing Dec. 10 and 11, 1953, Chamber of Commerce of the United States, Washington, D. C., 1615 H Street, N. W. $2.00.

Another Example of Lidgerwood *leadership!*





the welded steel drum

pioneered by Lidgerwood to save weight and space . . . and to produce large hoists that are safer and better than old types using cast construction, through the use of carefully-designed properly stress-relieved weldments.

Since 1875 Lidgerwood has been famous for quality hoisting machinery designed and built to give years of dependable, trouble-free service under most rigorous operating conditions.

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Designers and builders
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Machinery of every type;
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Auxiliary Machinery;
Construction Equipment;
Cableways up to 150 ton capacity.

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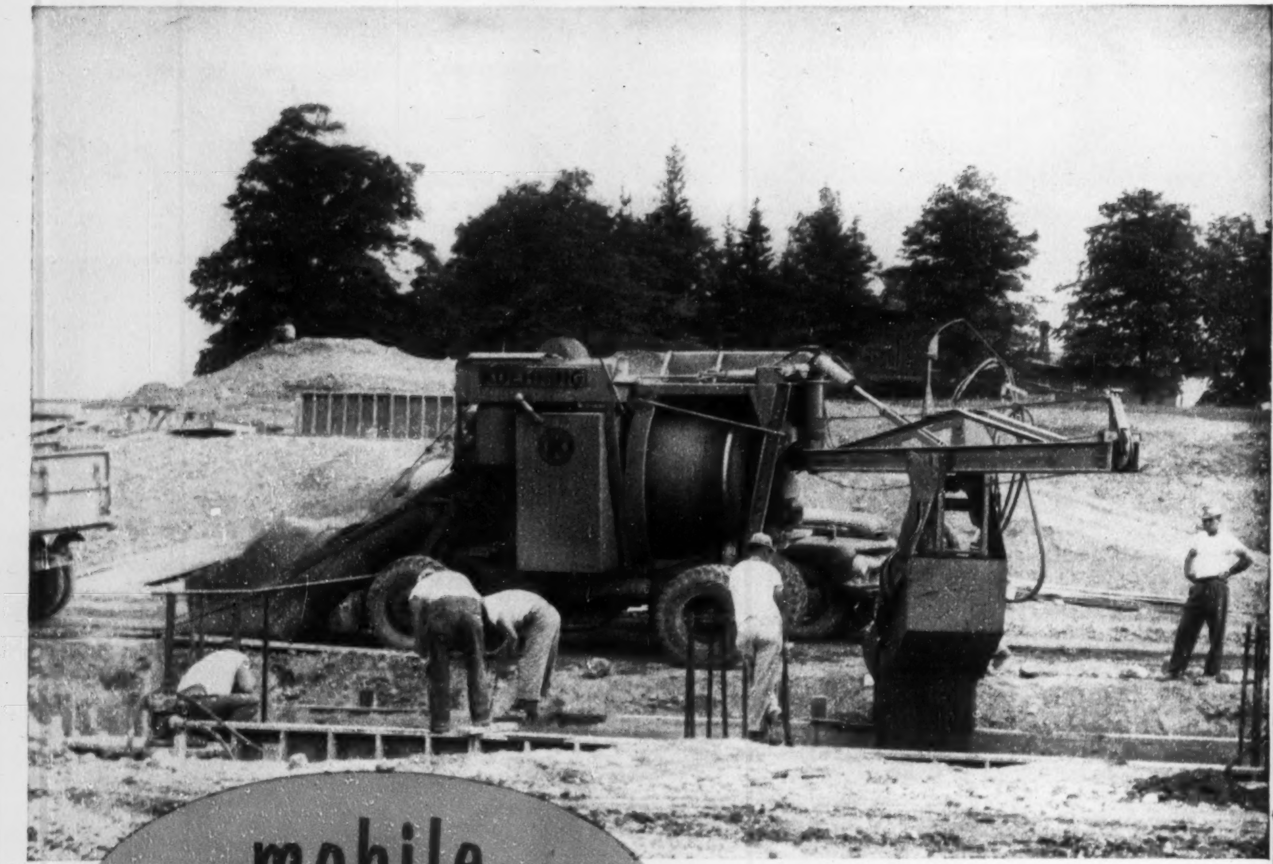


mobile concrete mix plant on rubber

Koehring 16-E *twinbatch* rides on pneumatic tires . . . works, travels on or off pavement . . . makes self-powered moves at 9 m.p.h. Its rubber-tired mobility increases productive work-time. Its high elevating boom discharges into overhead hoppers . . . pours concrete for buildings, pilings, culverts . . . or batches into trucks. Bucket on 60° elevating boom discharges at a height of 21 feet (higher with special boom). Boom also swings in a 160° arc . . . speeds pouring of floors, footings, highway and airport strips.

This versatile 16-E easily mixes and distributes over 50 cu. yds. per hour. 7-second skip hoist, split-second Autocycle mixing, and vertical syphon-type water tank all assure consistent, maximum-strength concrete at top mixing speeds. Get all the facts from your Koehring distributor . . . or write *Koehring Co., Milwaukee 16, Wis.*

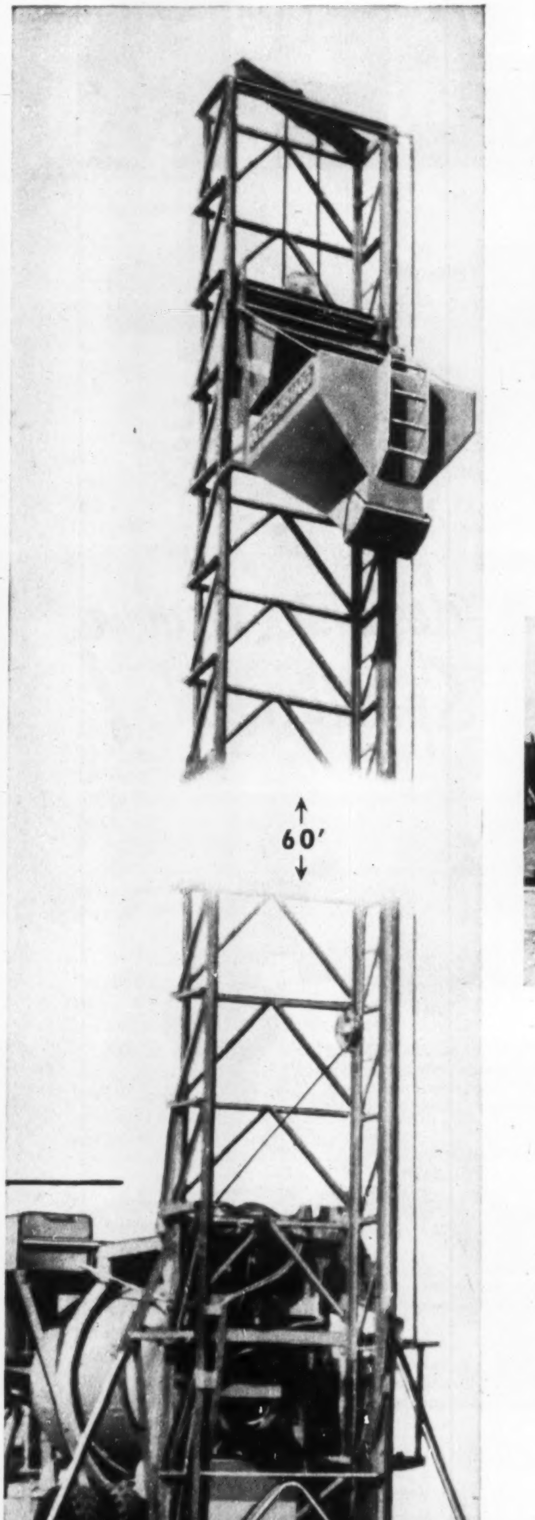
(Subsidiaries: JOHNSON • PARSONS • KWIK-MIX)

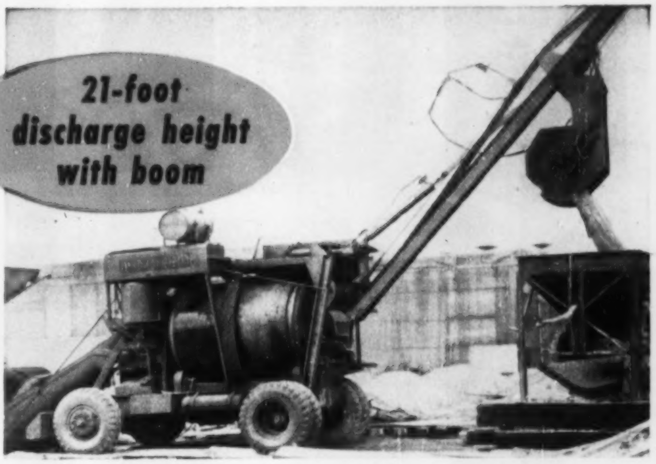
KOEHRING 16-E *twinbatch*®

48½-foot discharge height with tower

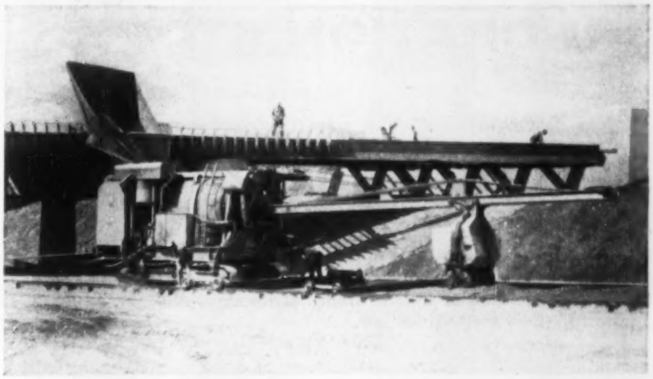
On the Koehring 16-E, the elevating boom is interchangeable with a 40 or 60-foot tower. This gives discharge heights up to 48½ feet for pouring high columns, piers, decks and upper floors. 21½-cu. ft. hoist bucket discharges automatically into 40 cu. ft. overhead hopper. Hopper is easily positioned (at 6-inch intervals) any where along face of tower. Tower is raised . . . or safely lowered into horizontal carrying position . . . by the same hydraulic ram used on the elevating boom.

K436

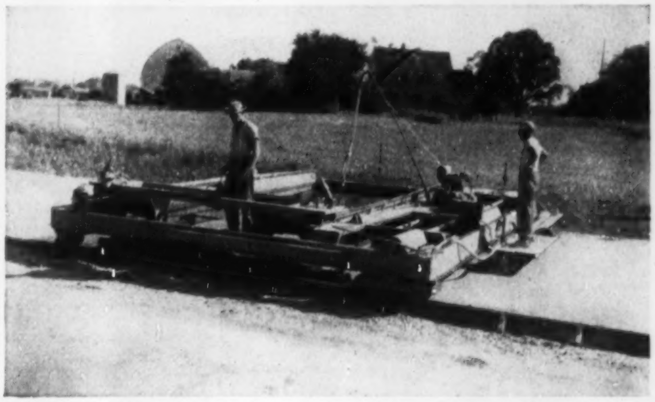




Koehring 16-E *twinbatch* is never "grounded". Bucket discharges anywhere along 25-foot elevating boom. Clamshell door on 24-cu. ft. bucket is hydraulically operated, opens or closes at any time for controlled discharge.



On large-volume paving, Koehring's big 34-E *twinbatch* hits top output of 86.7 batches an hour (60-sec. mixing time). This reserve capacity offsets normal job delays, assures an average of 50 batches hourly, 8 hours a day, at no increase in batching, hauling or finishing equipment.



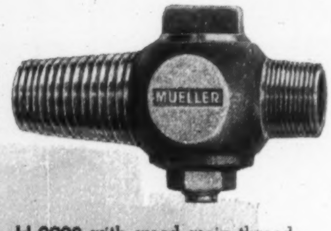
KOEHRING HEAVY DUTY

"Timely", precision-finishing is important on any paving job. Koehring Longitudinal Finisher operates at almost twice the speed of a 34-E paver, produces mechanically-accurate concrete slabs, 8-to-30-ft. wide, uniform crown transitions.

MUELLER®

H-15000 with Mueller Thread inlet—straight copper coupling nut outlet

H-10002 with Mueller Thread inlet—lead flange outlet



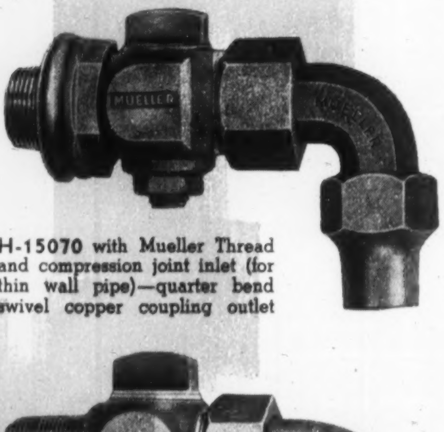
H-9990 with wood main thread inlet—I.P. thread outlet (same size as inlet)

CORPORATION STOPS *designed for your Specific needs!*

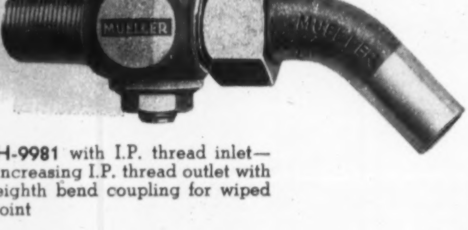
Since 1857, Mueller Co. has been vitally interested in the design and manufacture of high quality Water Works Bronze. This interest has resulted in the Mueller Thread—adopted as standard corporation stop thread by the AWWA, the introduction of copper service pipe and copper service connection thread design, as well as many other improvements for the water works industry.

All components of Mueller Corporation Stops are cast from Mueller Water Works Bronze; the key is precision ground and lapped into the body, and carefully tested and inspected. All exposed threads are accurately machined and coated with protective plastic, assuring arrival in an undamaged condition. This extra precaution also assures their quick, easy insertion into the main under pressure with your Mueller Tapping Machine.

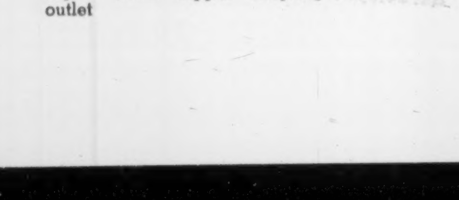
Consult your Mueller Water Works Catalog W-96 or your Mueller Representative, or write direct for complete range of sizes and types.



H-15070 with Mueller Thread and compression joint inlet (for thin wall pipe)—quarter bend swivel copper coupling outlet



H-9981 with I.P. thread inlet—increasing I.P. thread outlet with eighth bend coupling for wiped joint



H-15035 with I.P. thread inlet—eighth bend copper coupling outlet

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Dependable Since 1857

MAIN OFFICE & FACTORY DECATUR, ILLINOIS

LEGAL

Payment for extra work

"It is true under the ruling of this court in Badders & Britt v. Davis, 88 Ala. 367, 6 So. 834, that if the owner contracted to pay for extra work done at his request, it may be recovered although not ordered as directed by the general contract. But if he made no such promise to pay, then the presumption arises that work was to be done without extra charge. Davis v. Badders & Britt, 95 Ala. 348, 10 So. 422.

"There is also a principle that a provision in a building contract is valid and enforceable providing that extra work will not be paid for unless a claim in writing is made within a specified time to a particular person. Abercrombe & Williams v. Vandiver, 126 Ala. 513, 28 So. 491. To the same effect is the case of Roberson v. Tennessee Valley Authority, 237 Ala. 279, 186 So. 727 * * *.

"The principle is also asserted that where the owner orally orders the work, with notice that the contractor regards the work as extra and expects additional compensation, the contractor can recover though the requirement for a written order is not complied with. 66 A.L.R. 674. And this is true if the parties uniformly ignore the provision for a written order for extra work, 66 A.L.R. 675, or it is waived by other circumstances. 66 A.L.R. 677."[1]

In the above case, the subcontractor brought an action to recover for extra work performed under a subcontract. The subcontractor was directed to perform the extra work by the general contractor's superintendent and the work was accepted by the general contractor. The subcontractor obtained a judgment which was affirmed on appeal.

(1) Foster & Creighton Co. v. Box, 66 So. 2d 746, Supreme Court of Ala., June, 1953.

Time for performance

Where a written contract to construct a house contained no provision as to the date when the contract was to be completed, the law implies that performance will be done within a reasonable time.

Where the owner moved into the basement of the house before it was ready for occupancy and while water stood in the basement to a depth of several inches, the owner assumed the risk of damage to his furniture and personal effects.

(Continued on page 90)

MILCOR*

Steel Roof Deck

The permanence of steel — in a roof that *goes up fast!*

Time is money on every building job! Milcor Steel Roof Deck gets operations under cover fast at low labor costs, gives ideal base for permanent roofs.

Milcor Roof Deck offers cost-cutting advantages you can't afford to overlook:

1. It can be erected anytime — in any weather a man can work.
2. It is light in weight — finished roof requires less costly supporting structures.
3. It is versatile — can be used for flat, pitched, or curved roofs . . . sidewalks and partitions . . . or as permanent steel forms for concrete.

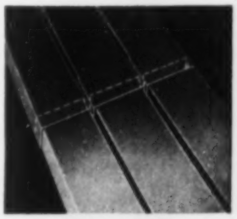
Milcor Steel Roof Deck provides additional advantages, also: High strength-to-weight ratio. Fire resistance. Low maintenance cost.

There are many durable, low-cost Milcor Roof Deck installations now in service throughout the country — on auditoriums, field houses, factories, office buildings, hotels, apartment houses, hospitals, and schools.

For help in using Milcor Steel Roof Deck efficiently, see the Milcor Manual. Write for your copy. And — call on our engineering service for assistance on your special problems.

M-131B

Milcor Steel Roof Deck is quickly attached to any structural member by welding. Clips can be furnished for anchoring the deck, when welding facilities are not available or if purlins are wood.



Unique design permits sections to be nested and lapped quickly and easily. Plates interlock firmly, providing an unbroken roof surface that is adaptable to any degree of insulation.

*Reg. U. S. Pat. Off.

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PROTECTIVE COATING

Well worth noting:

Use a FLINTKOTE Coating for years of heavy-duty protection

Flintkote makes you a *complete line* of spray, brush or trowel applied coatings for water, dampness and corrosion control . . . each designed for *specific* protection requirements, inside and out.

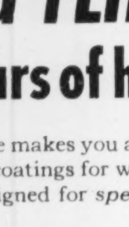
One of these products, and a good name to remember, is Flintkote HYDRALT® . . . multi-purpose industrial asphalt emulsion coatings, fibrated and non-fibrated.

HYDRALT Protective Coatings are unique mineral colloid asphalt emulsions which provide a durable, thick film *reinforced within itself.* Will not sag, flow or crack. Cold-applied over metal, masonry and insulation materials.

Is resistance to oil, grease and other petroleum products a problem? Then use Flintkote ORTAR† Emulsion Coating, a coal tar product.

You'll find complete details about all Flintkote protective coatings in Sweet's Catalog. Or write us.

† Trade-mark of The Flintkote Company



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The Flintkote Company of Canada, Ltd., 30th Street, Long Branch, Toronto, Canada

Where time is of the essence of the contract for the construction of a house, the measure of damages for failure to complete the building in time is the rental value of the building for the period of the delay and not the rent paid by the owner for the house he occupied during the delay.[1]

"When a written contract is silent as to time of performance, a reasonable time is to be presumed without reference to parol [oral] evidence. Brady v. Central Excavators, Inc., 316 Mich. 594, 607, 25 N.W. 2d 630, 635 and authorities therein cited."[2]

(1) Lindberg v. Brandt et al., 112 N.E. 2d 746, Appellate Court of Illinois, May 11, 1953.

(2) Giffels & Vallet Inc. v. Edward C. Levy Co., 58 N.W. 2d 899, 902, Supreme Court of Michigan, April 13, 1953.

Compensation for services

A surveyor, at the request of the owner of a parcel of land, submitted an estimate that the cost of a survey of the land would not be less than $80 nor more than $100. The surveyor was then directed to proceed with the work, and when the same was completed, he submitted a bill for $587.55. The owner refused to pay the amount of the bill and sent the surveyor $100. The surveyor then brought an action to recover the balance that he claimed to be due him. The court held that under the contract the surveyor's compensation was limited to $100 and he was denied any recovery in excess of the $100 paid to him.[1] The court stated:

"The legal principles governing this case are beyond dispute. Where a contract provides that compensation is to be paid for services, but the amount is not fixed, the party furnishing the services in performance of the contract is entitled to the reasonable value thereof. Where a contract contains an express stipulation as to the amount of compensation, that stipulated is conclusive on the parties and measures the amount of recovery for performance. We adopt the rule that where one party desiring certain work to be performed and requests an estimate of the cost, and the other party submits an estimate that the proposed work will cost not less than a certain sum and not more than another sum, whereupon the first party directs the second party to perform the work, no contract for a specific sum arises, and the second party can recover the reasonable value of the services rendered but not exceeding the larger sum."

(1) Seybolt v. Baber, 97 A. 2d 907, Court of Appeals of Maryland, July 2, 1953, and numerous cases there cited.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

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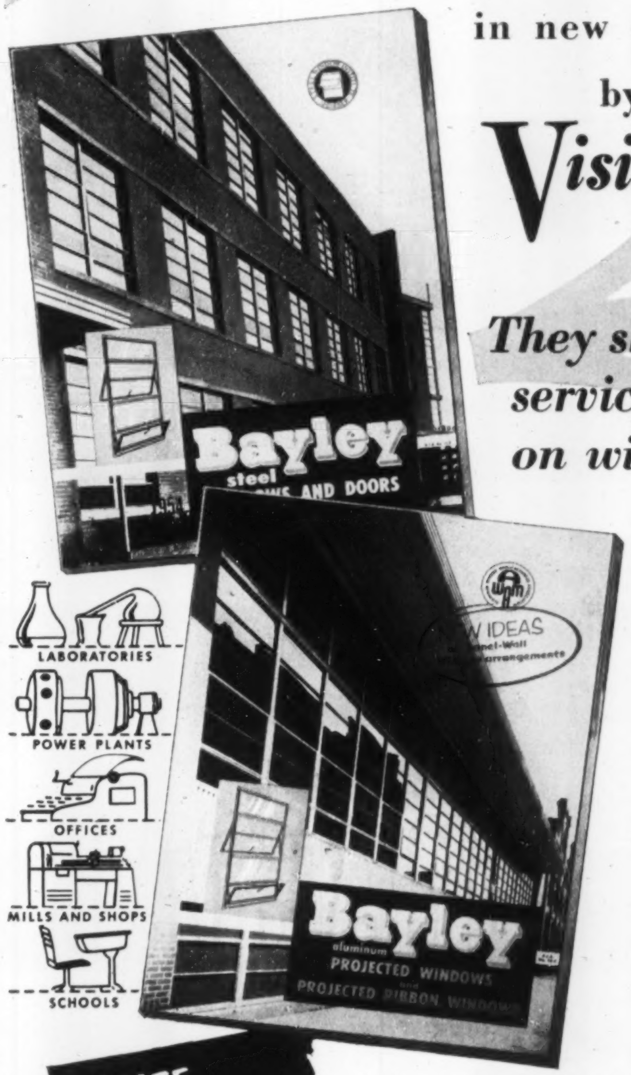
*Visioneering**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Windows can make a big difference in your building maintenance budget—they account for such a large percentage of the building's wall area. So the best window is your cheapest buy in the long run. That's why Bayley metal windows—steel or aluminum—have enjoyed such regular specification preference from cost-minded buyers. By exceeding usual standards in depth, weight, design, workmanship, appearance and performance, Bayley Windows effect maximum ultimate economy. In these catalogs, that will be gladly sent upon request, you'll find complete details on Bayley Windows to best meet every condition. Bayley is always glad to also consult with you on your specific window needs. No obligation.

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Springfield, Ohio

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Breaking pavement — with a Tractair-powered Model 52 Le Roi-CLEVELAND Paving Breaker. This tool, designed for heavy-duty work, is ideal for breaking the toughest concrete. Operators like its easy-handling power.

Tamping Fill — Tractair with a Le Roi-CLEVELAND Multiple Tamper attachment and work-saving air feed keeps up with either three men shoveling—or a backfilling tractor. You cut costs.

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LE ROI GIVES YOU MORE FOR YOUR MONEY!

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Street patching — with a Le Roi-CLEVELAND patch drill mounted on the rear platform of a Tractair. This unit drills closely-spaced holes within a 7-foot radius, then broaches the section of pavement loose for easy removal.

cuts costs with multi-purpose usefulness

MULTI-PURPOSE usefulness — that's the key to Tractair's ability to lower costs.

It doesn't make much difference how big or how small your job is, there are always a thousand and one odds and ends to clean up. That's where Tractair fills the bill. Tractair is a combination 35-hp wheel tractor and 105-cfm compressor. Its mobility lets you take air power where you need it — air power for drilling rock, tamping fill, breaking pavement.

And when Tractair is equipped with its front-end loader and attachments, you can load, lift, backfill. Tractair can also be used for digging and hoisting.

Let your Le Roi distributor demonstrate how Tractair's multi-purpose usefulness can improve your cost picture. Call him or write us for further information.

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Rock Drills
Tractair
Engines

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T-38

Nation-Wide Sales-Service Network

ALABAMA: Birmingham, Mobile — ARIZONA: Phoenix — ARKANSAS: Little Rock — CALIFORNIA: Bakersfield, Long Beach, Los Angeles, San Francisco — COLORADO: Denver, Grand Junction — CONNECTICUT: Hartford — FLORIDA: Jacksonville, Miami, Tampa — GEORGIA: Augusta, Decatur — IDAHO: Boise, Idaho Falls, Twin Falls — ILLINOIS: Chicago — INDIANA: Indianapolis — IOWA: Cedar Rapids, Des Moines, Waterloo — KANSAS: Great Bend, Kansas City, Pratt, Wichita — KENTUCKY: Lexington, Louisville — LOUISIANA: New Orleans, Shreveport — MAINE: Augusta — MARYLAND: Baltimore, Hyattsville — MASSACHUSETTS: Hyde Park, Newton Highlands, Worcester — MICHIGAN: Detroit, Grand Rapids — MINNESOTA: Duluth, Minneapolis — MISSISSIPPI: Jackson — MISSOURI: Joplin, St. Louis — MONTANA: Billings, Great Falls, Kalispell, Missoula — NEBRASKA: Omaha — NEW HAMPSHIRE: Manchester — NEW JERSEY: Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Saugerties, Syracuse, Whitesboro, Woodside (L.I.) — NORTH CAROLINA: Charlotte — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo — OKLAHOMA: Oklahoma City, Tulsa — OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Rapid City, Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper.

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
May Materials, and Labor Prices will appear in May 6, 1954 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.: per block		CONCRETE Ready Mixed 1:2:4: over.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	50 c.y., del.
Atlanta	$3.87	$3.56	$3.40	$2.075	$2.075	$1.83	$2.20	$2.20	$1.99	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.60‡a	2.60‡a	2.00‡a	2.75‡a	2.80‡a	2.65‡a	2.60‡a	.17	.17a	11.45
Birmingham	3.26	2.60e	....	2.53n	2.53n	2.23n	2.64	2.64	1.35	1.45	.165	.165	11.00
Boston	4.16	3.84	3.96	2.50a	2.50a	2.50a	1.50a	1.60a	.....	.....	.215	.245a	12.00h
Chicago	3.48	3.17	....	3.25‡b	3.25‡b	3.65‡b	3.25‡b	3.25‡b	2.25‡	2.25‡	.23	.23b	11.70/11.94
Cincinnati	3.76	3.55	3.55	2.19‡c	2.24‡c	2.24‡c	2.54‡c	2.54‡c	.....	.....	.21	.225a	10.95
Cleveland	N. A. in C. L.	3.19e	....	2.05f	1.85f	1.65	4.10a	4.10a	3.35‡	3.15‡	......	.22	14.40d
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	.....	.....	.11e	.2675	9.40
Denver	4.04	3.74	4.04	1.85	2.00	1.20	....	....	.....	.....	.23	.255a	10.50
Detroit	3.92	3.62	3.57	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	.19	.20a	12.00f
Kansas City	3.52	3.22	3.30	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	.....	.....	.21a	.24c	12.00b
Los Angeles	4.52a	4.00a	5.00	2.16a	2.36a	2.11a	2.11a	2.21a	.....	.....	.14fm	.248m	11.88lh
Minneapolis	3.95d	3.64d	3.56	2.55‡ag	2.55‡ag	1.50‡ag	2.75‡ag	2.75‡ag	.....	.....	.19i	......	12.75fi
Montreal	3.16ac	2.96ac	....	3.00e	3.00e	2.25	1.65ij	1.90ij	.....	.....	.20	.20a	10.55ek
New Orleans	3.35	3.02	3.33	2.32	2.32	1.82	....	....	1.05	1.25	.275	......	12.90
New York	4.01	3.70	3.53	2.85bk	2.85bk	1.90bk	2.70bl	2.70bl	.....	.....	......	......	13.55an
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.58/3.63‡	2.75‡ep	2.75‡ep	2.15‡ep	2.30‡	2.40‡	2.00	1.90	.22/.25	......	12.50de
Pittsburgh	3.47	3.19	3.47	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22d	.22	13.00
St. Louis	3.45/3.68b	3.09/3.35b	3.25/3.42	3.10am	2.90am	2.30/2.90am	1.70j	1.70j	1.50	1.50	.22	.28ci	11.40
San Francisco	3.67	3.24	....	2.07	2.07	2.17	2.22	2.22	.....	.....	......	.28cl	12.15c
Seattle	4.80a	3.55a	5.95h	3.50‡bm	3.50‡bm	3.50‡bm	4.00‡bm	4.00‡bm	.....	.....	.25i	.3325i	12.30i

‡ Delivered. * Prices incl. dealers discount except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers discount not incl. *d* Dealers sell only LCL. *e* Truckload lots, destination price. *h* LCL.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *o* 1–3 mi zone. *p* Add 10¢ for ea. add'l 3-mi zone.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5¼ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *l* F.o.b. plant San Rafael. *m* F.o.b. yard
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cy. brackets. *d* 1–3 mi. zone. *e* 2,000 lb comp. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. *o* Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.75†	Buffington, Ind	$2.70†	Steelton, Minn	$2.80†	Muskegon, Mich	$2.85†	Toledo, O	$2.80†
Clinchfield, Ga	2.75†	Independence, Kan	2.65†	Leeds, Ala	2.60†	Saginaw, Mich	2.75†	Milwaukee, Wis	2.90†
Kingsport, Tenn	2.75†	Hannibal, Mo	2.70†	Duluth, Minn	2.80†	Wyandotte, Mich	2.75†	Green Bay, Wis	2.90†
West Des Moines, Iowa	2.80†	Northampton, Pa	2.75†	Hudson, N. Y	2.75†	Buffalo, N. Y	2.85†	Ironton, O	2.75†
Nazareth, Pa	2.75†	Universal, Pa	2.80†	Alpena, Mich	2.65†	Oswego, N. Y	3.00†	Montreal City	2.66
Bath, Pa	2.75†	Waco, Tex. (+ 10¢ tax)	2.60†	Detroit, Mich	2.75†	Cleveland, O	2.90†	W. Winfield, Pa	2.80†

† *Prices to hold for second quarter of 1954.*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

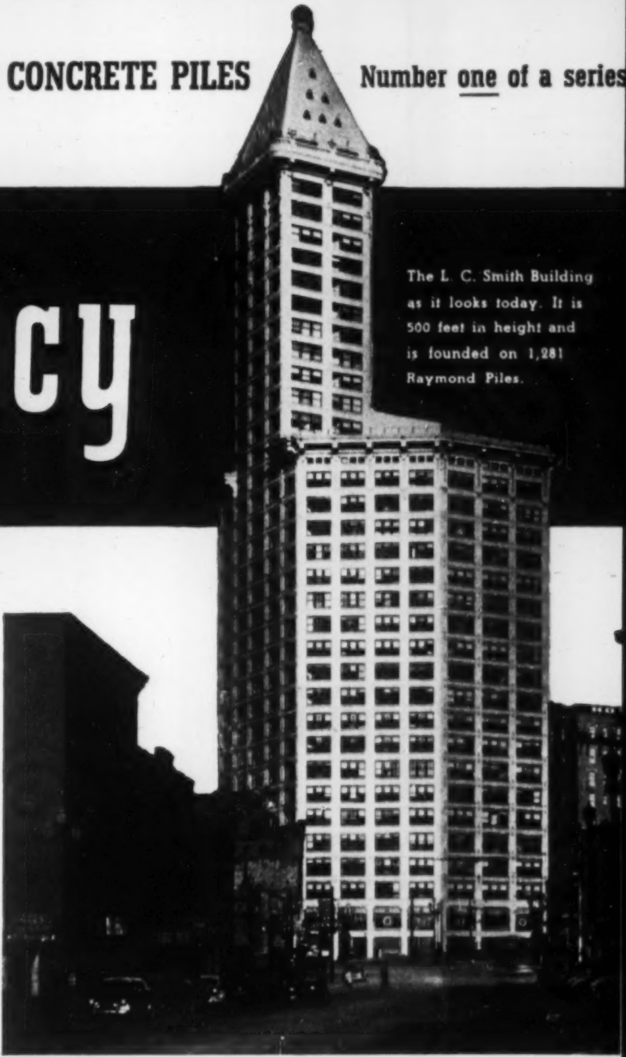
	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-break) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	75.00‡	.....	21.00i	.....	.0651i	0.1751i	.09iw	.18iw	.09i	.095i	0.185i
Birmingham	.....	49.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00a	23.00a	22.00av	22.00av	.....	.....	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	3.60/3.65‡j	21.05b	31.05b	20.05bv	30.05bv	.099bw	.1890bw	.0775b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	65.00d	5.03g	23.00A	.....	23.00A	.....	.1025Aw	.....	.....	.11A	.18A
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.098	.1014	.2128
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	98.00	.....	28.41	.....	28.41v	.....	.1188w	.....	.0925	.....	.211
Kansas City	e	e	e	15.00cl	.....	.06	.....	.065ew	.....	.055c	0.10	.....
Los Angeles	e	.....	e	16.00dmx	.....	16.00dvx	.....	18.00dx	.....	17.00dv	.0825j	.1725j
Minneapolis	.....	.....	2.97h	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montreal	.....	e	e	27.00n	39.60n	.135n	.198n	16.50nu	20.90nu	.132n	.184ns	.225ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	....o	.085ew	....o	.0825B	.085	.....
New York	.....	.....	2.75f	23.89qCD	44.32qD	22.89vtCD	43.57vtD	.1023wCD	.1889w	.....	.1023CD	.1918D
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00	40.00	.095	.10	.22
St. Louis	.....	.....	.....	18.66f	.....	.1758	.....	.084/.0865w	.....	0.15	.10	.....
San Francisco	.....	55.00e	.....	17.50g	33.00gp	17.50gkv	33.00gkv	20.00g	37.50g	18.75v	.085y	.....
Seattle	.....	.....	.....	17.50h	38.00h	17.25hv	.....	20.00h	.....	19.75hv	.085h	.095hr

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2⅜ x 8¼ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6# treat. *g* 3" *h* 2" int., 8# treat. *i* 3 x 3⅝ x 8½. *j* 2½", 6lb. tr.
ASPHALTS: *a* Price at plant, Everett, Mass *b* F.o.b. refinery Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40/80 penetr. *n* Tax incl. *o* Drums not avail. Shipped in steel bbl. *q* 40/85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85/200 penetr. *u* Per 100 gal. • Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. A F.o.b. refinery, Cleveland. B F.o.b. Norco, La. C Bulk. D Prices based on transporting to Manhattan via truck.

(Continued on p 97)

***ADVANTAGES OF RAYMOND CONCRETE PILES** **Number one of a series**

permanency



The L. C. Smith Building as it looks today. It is 500 feet in height and is founded on 1,281 Raymond Piles.

IN 1912 the first Raymond Concrete Piles were driven for one of the country's earliest skyscrapers . . . the 42-story L. C. Smith Building in Seattle. Today, 41 years later, the L. C. Smith Building, towering high above Seattle's skyline, is still the tallest building on the Pacific Coast . . . exemplifying the fact that when you specify Raymond Piles you can be sure of a firm and permanent foundation.

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5¢ NOW 5¢
CIGAR
DEARBOR
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RAYMOND'S SERVICE ABROAD . . . In addition to the above, all types of General Construction.

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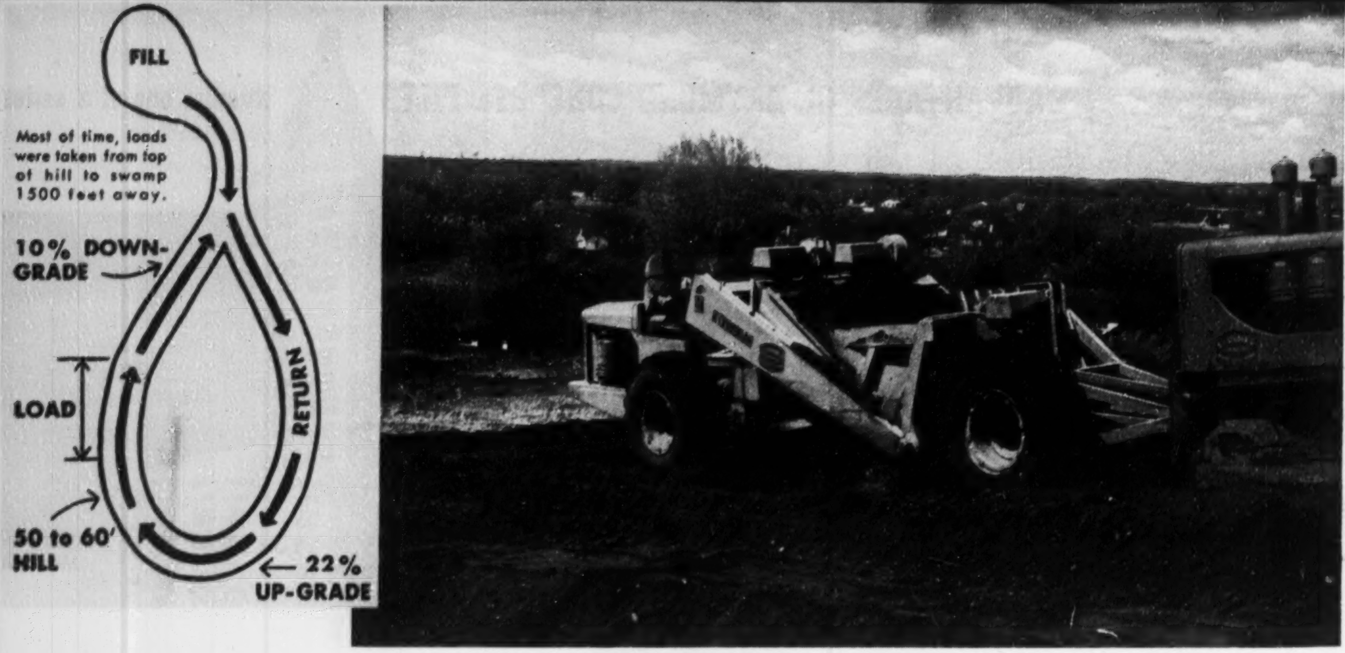
CONCRETE PILE CO.
140 CEDAR STREET • NEW YORK 6, N. Y.
Branch Offices in Principal Cities of the United States, Central and South America

◀ Two Raymond rigs driving piles for the L. C. Smith Building in Seattle in May, 1912.


FILL
Most of time, loads were taken from top of hill to swamp 1500 feet away.
10% DOWN-GRADE
LOAD
RETURN
50 to 60' HILL
22% UP-GRADE

Loaded downhill, Tournapull heaps 12 cubic yards of sandy subsoil in 1 minute.

Level 600,000 yd. hill for new skyscraper

3 Tournapulls move 360 yds. an hour, 10 hours a day, on Prudential Insurance Company site in Minneapolis

To provide better service to thousands of policy holders, the Prudential Life Insurance Company has transferred much of their work from Newark to 5 regional offices around the country. Rather than search for the extensive office space needed in each city, they are putting up 5 new buildings. Each will house over 1,000 Prudential employees, plus dept. stores and other rental units. Skyscrapers in Los Angeles and Houston, already finished, are among the most modern in the world. Under construction are a 42-story building in Chicago's Loop and another in Jacksonville, Fla.

Spread over marshy area takes 10 seconds.
Total 3000' cycle takes under 5 minutes.

E. I. Studer, Minneapolis contractor, has to move 600,000 cubic yards to prepare the site for the Minneapolis building. His 3 C Tournapulls are handling about ⅔ of the total. They now are cutting down a 50 to 60' hill, using the dirt and sand to fill a swampy area.

3000' cycle in less than 5 minutes

In typical good-weather operation, each of the 3 Tournapulls moves 10 to 11 loads hourly on the 3000' cycle. Loads in sandy soil average 12 pay yards. Unit production averages 120 to 132 pay yards per 50-minute hour.

Part of this high output is due to Tournapull's ability to pull through soft footing . . . part to high haul speeds. Unit speed varies from 14 to 15 mph on downhill and level haul . . . 8 to 9 mph on return up 10 to 22% grades. Tournapulls also move fast job-to-job. They drove under their own power to this job from Tower, Minnesota, at a 20 mph average (240 miles in 12 hours).

Get all the facts

Now that high quality, precision manufacturing traditions of Westinghouse have been combined with LeTourneau earthmoving experience, you will find LeTourneau-Westinghouse machines give you better service than ever before. We'll be glad to prove it with a demonstration on your job.

Tournapull—Trademark Reg. U.S. Pat. Off. P-490-B-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

MATERIALS AND LABOR PRICES

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	STEEL RAILS Re-rolled	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$4.10	$4.10	$4.15	$8.90	..	$86.50	$104.00	Not	$5.275	$7.05	$5.125	....
Chicago Area	4.10	4.10	4.15	8.90	$4.925	86.50	104.00	avail-	5.275	7.05	5.125	....
Pittsburgh Area	4.10	4.10	4.15	8.90	4.925	86.50	104.00	able	5.275	7.05	5.125	$11.00
Buffalo Area	4.10	4.10	4.15	8.90	4.925	86.50	104.00	....	5.275	7.05	5.125	11.00
Cleveland	....	....	4.15	8.90	4.925	......	......	....	....	....	....	11.00
Youngstown Area	....	....	4.15	....	.....	......	......	....	....	7.05	....	....
Geneva	4.10	4.10	....	....	....	......	......	....	....	....	....	...
Los Angeles	....	....	....	....	4.925	......	......	....	....	7.05	....	..
Pueblo	4.30	4.70	4.75	....	....	......	95.00	....	5.275	7.05	5.125	11.00

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATH*k* Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH*k* Std. ribbed 3.4 lb.
Atlanta	$7.31	$7.11*s*	$7.11*s*	$38.00‡	$42.00‡
Baltimore	6.98	6.91*j*	....	42.00	45.00
Birmingham	6.35	6.15*t*	6.15*t*	50.00*p*	55.00*p*
Boston	7.06*a*	7.22	7.22	39.50	43.50
Chicago	6.46	5.75*gu*	5.75*gu*	43.00‡	50.00‡
Cincinnati	6.93*ak*	6.91*rv*	....	39.00*mn*	43.00*mn*
Cleveland	6.79	5.61*c*	....	36.50‡	40.50‡
Dallas	9.05	7.25	7.25	49.00	52.00
Denver	7.95	7.30*c*	....	52.50*n*	64.50*mn*
Detroit	6.91	7.04*dw*	....	50.50	54.50
Kansas City	7.05*a*	7.27	....	43.50	47.50
Los Angeles	7.35*fd*	6.85	....	51.00	57.00
Minneapolis	6.92*d*	7.53*b*	7.53*b*	34.50	38.50
Montreal	8.20*iC*/9.20*A*	6.05*i*	6.05*i*	46.00*h*	51.00*h*
New Orleans	....	6.15*akz*	....	66.00	60.00
New York	7.20	7.01*y*	7.01*y*	38.50*no*	44.00*no*
Philadelphia	6.42	6.67	....	38.00‡	42.00‡
Pittsburgh	6.40	6.40*z*	....	37.60	39.60
St. Louis	6.86*a*	6.30*c*	6.30*c*	55.00*l*	56.00*l*
San Francisco	7.25	6.85*j*	....	40.50	43.50
Seattle	4.85*e*	6.20*cj*	....	51.00*nr*	57.00*nr*

Quantity extras, per cwt: under 100#, +$4; 100–399#, +$2; 400–999#, +85¢; 1000–1999#, +20¢; 2000–9999#, base price; 10,000–19,999#, −20¢; 20,000–39,999#, −40¢; 40,000# and up, −50¢

EXTRAS, per cwt—*Quantity: less than 700#, +50¢: 700–1499#, +25¢; 1500–7999#, +10¢ *Size†: #2 +$2.20; #3 +$1.10; #4 +80¢; #5 +62.5¢; #6, #7 +45¢; #8, #9, #10 +30¢ *Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job) *Spirals (unassembled into fab. unit): hot roll. rods, +$1.75; cold drawn wire, +$2.75; *Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–500 tons, +50¢ but not over $4500; 20–200 tons, +60¢ but not over $2000; 5–20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70 *Design only: +60¢

WELDED FABRIC REINFORCING

Per 100 sq. ft., carload lots fob mill

4 × 16 in., No. 5 & 10 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa. $3.08

4 × 12 in., No. 8 & 12 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa. $2.02

6 × 6 in., No. 6 & 6 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa. $3.23

*‡ Delivered *a 2000–9999# *b 10,000–15,999#, fob city *c 20 tons or over *d 10,000–19,999# *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more *q 4# per sq. yd. *r 2% off for cash *s add 2.5¢ switch *t add 5¢ switch, 15¢ del. *u add 6.25¢ switch *v add 15¢ del. *w add 20¢ del. *x add 5¢ switch *y add 30¢ del. *z add 10¢ del. *A American made *C Canadian made † Number system replaces inch system of classifying bar sizes, effective this issue. New system is based on number of eighth inches in diameter of bar.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PI. : Per net ton f.o.b. 6 in. to 24 in.*a*	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE 12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	VITRIFIED SEWER PIPE std. 12 in. s.s.	VITRIFIED SEWER PIPE 24 in. ds.	VITRIFIED SEWER PIPE 36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	CLAY DRAIN TILE 8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	CONCRETE SEWER PIPE 24 in.
Atlanta	$101.00	$1.45	$2.42	$ .545	$1.27	$4.82	$12.925	$248.00	$356.00	$0.90*m*	$3.40*m*
Baltimore	121.50	1.45	2.42	.578	.999	4.095*v*	11.1725	178.20	274.80	.95	2.60
Birmingham	108.00	1.45	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25*m*	2.75*m*
Boston	122.00	1.47	2.20	.553*qrs*	1.0665*qrt*	4.41*qrt*	11.90*qrt*	187.80*r*	289.20*r*	1.62*mg*	3.95*mg*
Chicago	107.00	1.45	2.20	.70*m*	1.35*m*	5.62*m*	13.50*m*	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.47	2.29	.581*t*	1.120*t*	4.41*t*	11.375*t*	164.40	254.10	.80*m*	2.95*m*
Cleveland	108.00	1.47	2.29	.462*s*	.945*s*	3.69*s*	10.04*u*	158.00*m*	245.65*m*	.82*m*	3.10*m*
Dallas	112.00	1.47	2.54	.439	.799	4.00*b*	9.17*b*	......	......	.49	1.60
Denver	115.00	1.53	2.54	.45*n*	.78*n*	3.48*n*	....	......	......	.74*m*	2.50*m*
Detroit	108.00	1.47	2.29	.75	1.45	5.75	15.50	230.00*m*	350.00*m*	.86	3.47
Kansas City	113.00	1.47	2.29	.53	.945	3.87	10.60	250.00	480.00	.80	3.25*g*
Los Angeles	126.35	1.53	2.29	.62*l*	1.26*l*	5.21*l*	14.89*l*	228.20*l*	348.90*l*	.95	2.75*f*
Minneapolis*w*	112.00	1.49	2.42	.72*mo*	1.32*mo*	5.32*mo*	....	......	......	1.38*h*	3.93*h*
Montreal	110.00	....	....	1.07*u*	1.73*u*	5.52*u*	8.93*u*	......	......	1.17*h*	3.11*j*
New Orleans	101.50	1.45	2.42	.53	.965	5.13	....	300.00*p*	500.00*p*	.65	2.29
New York	111.35	1.47	2.20	.61	1.22	4.82	12.81	......	......	1.15	3.00
Philadelphia	110.00	1.45	2.20	.65	1.25	4.95*v*	12.65*v*	300.00‡	350.00‡	1.60*h*	3.95*h*
Pittsburgh	110.00	1.47	2.20	.468*m*	.864*m*	3.26*m*	8.71*m*	152.00	244.00	1.05*h*	2.50*h*
St. Louis	112.00	1.45	2.29	.56	1.08	4.22	9.80	180.00*l*	380.00*l*	1.20*il*	2.85*hl*
San Francisco	127.00	1.53	2.29	.69*d*	1.41*d*	5.73*d*	14.32*d*	235.00*l*	392.00*l*	.73	3.02
Seattle	122.00	1.54	2.42	.51*b*	.91*b*	....	....	150.00*c*	......	.85*k*	2.75*k*

***WROUGHT STEEL PIPE**

(Full standard weight)

Discount from list; see footnote

Mill	2½ & 3 in., Butt Weld† Black %	2½ & 3 in., Butt Weld† Galv. %	3½ to 6 in., Lap Weld† Black %	3½ to 6 in., Lap Weld† Galv. %
Lorain, Ohio	36.75	20.50	....	....
Aliquippa, Pa.	36.75	20.50	27.75*a*	11.00*a*
Sparrows Pt., Md.	34.75	20.50	22.75*a*	6.00
Benwood, W. Va.	36.75	20.50	26.50*d*	10.25*d*
Youngstown, O.	36.75	20.50	....	....
Indiana Harbor, Ind.	35.75	19.50	26.75*ab*	10.00*a*
Sharon, Pa.	36.75	20.50	....	....
Wheatland, Pa.	36.75	20.50	27.75*a*	11.00*a*
Etna, Pa.	36.75	18.50*b*	26.50*d*	8.25*d*
Fontana, Calif.	23.75*b*	10.00*b*	14.75*ab*	0.50*ab*

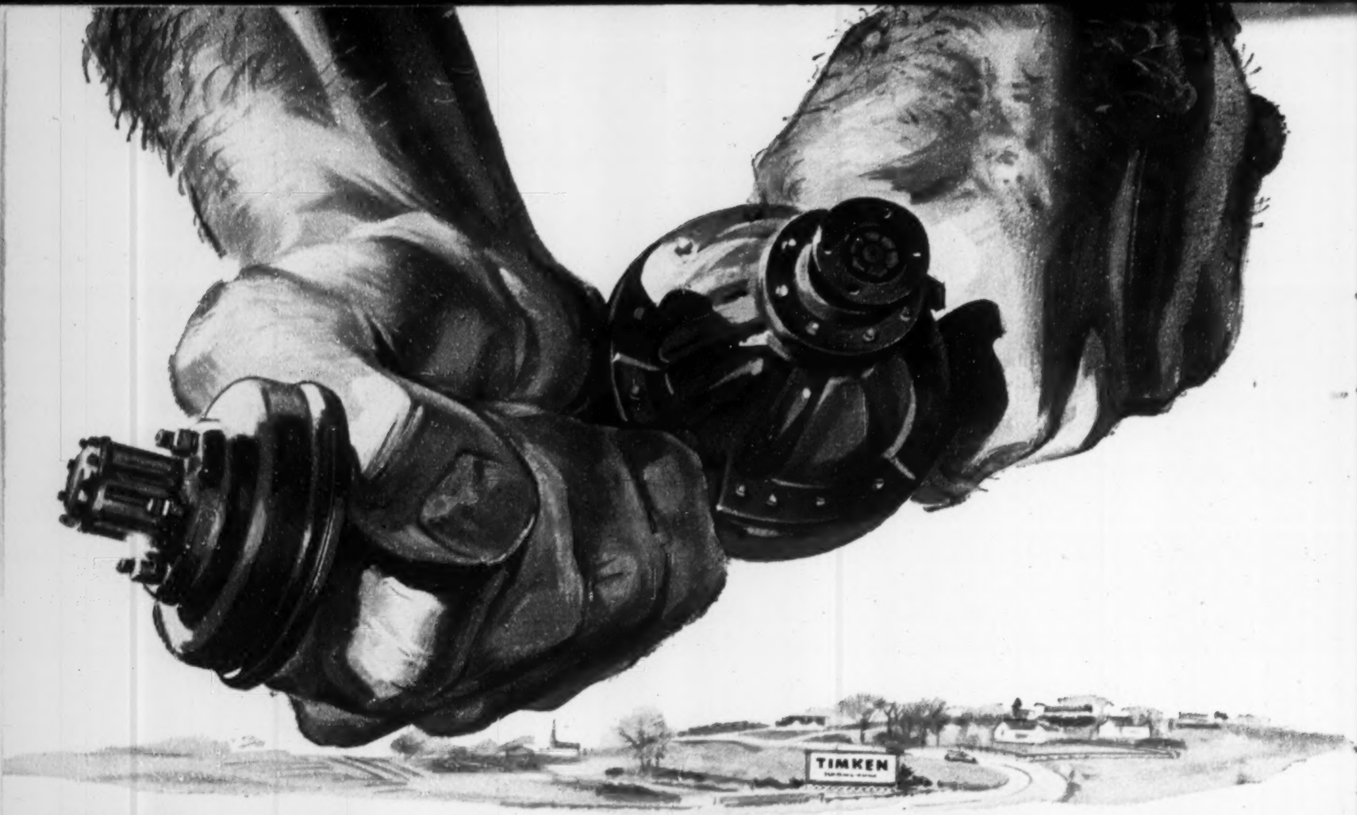
† Threaded and coupled. *a* 3½ to 4 in. *b* Continuous weld. *c* 5 and 6 in. *d* 6 in.

*‡ Delivered *a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b Extra strength ASTM C 200–44T *c 4-in., $90 *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76–41 *h reinforced, ASTM C 75–41 *i reinforced, ASTM C 76–37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13–40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60–1941 specs. used *v standard strength *w 6 in., $1.67 per ft., Class 150, CL, fob track

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): *Butt Weld* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: *Butt Weld* —1 in. black, + 32.75, galv. + 61.0; 1¼ in. black, + 32.75, galv. +60.50, 1½ in. black, + 29.25 galv. + 56.75; *Lap Weld* — 2½ in. to 3 in. black + 33.50 galv. + 59.5; 4½ in. to 6 in. black + 30.50 galv. + 54.75. Add freight rates plus 3% transportation tax to get destination price.

(Continued on p. 100)



We tie truck axles in

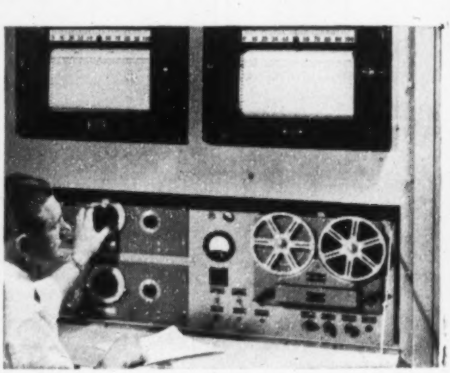
in the new Timken-Detroit indoor proving ground . . . and only

We twist, shock-load, abuse, and torture them. Match every conceivable hauling condition. Then add a few brutal tricks of our own!

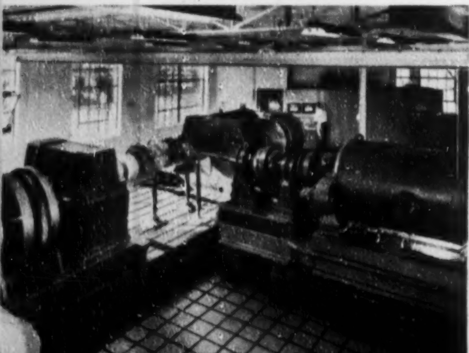
Why? So you'll know in advance, and *for sure,* that a Timken-Detroit axle can take the punishment it was designed for. More rugged, grueling punishment than any other axle made!

To prove it, we capsuled a multi-thousand acre proving ground into one room. Here our engineers can put 50 years of experience in building axles for trucks, buses and trailers to work — subjecting axles and gearing *indoors,* to any *outdoor* operating condition.

Such exacting research pays off for you in: longer axle life; less maintenance, repairs and downtime; reduced operating expenses. This is why Timken-Detroit axles are preferred by manufacturers and operators everywhere.



This is our "truck driver." He works in our "Torture Chamber." Above him are graphs showing speed and torque performance under any operating condition he chooses . . . soft ground at full load . . . mountains . . . express highways or side roads. With special dials, recorders and electronic devices, he actually *drives* the axle with scientific accuracy from his chair!



How TDA proves axle quality in this "Torture Chamber"

We pick one of our axles at random . . . then duplicate a hauling condition, hour after hour, day after day . . . simulating half a million miles of the toughest driving situations in just a few days. Or "invent" a test like going up hill with a full load from California to New York nonstop. There is no other axle testing like it in the world!

Soft ground? Heavy load—all up-grade? That's a tremendous strain on an axle. But it's nothing compared to what we do in the indoor proving ground! For instance—we take an axle shaft and twist it 14° forward and backward, 36 times a minute, 24 hours a day, week after week. And that's only one test to give you low-cost performance, long axle life regardless of your hauling conditions.

Hauling wet mix? You need Timken-Detroit axles—duplicates of axles that have been given the "works" in our indoor testing laboratory. Simulating the punishment the axle would get hitting a chuck hole with a capacity load every 4 seconds, 24 hours a day, month after month! And it's all done to save you money on maintenance and repairs—make you more money every load.

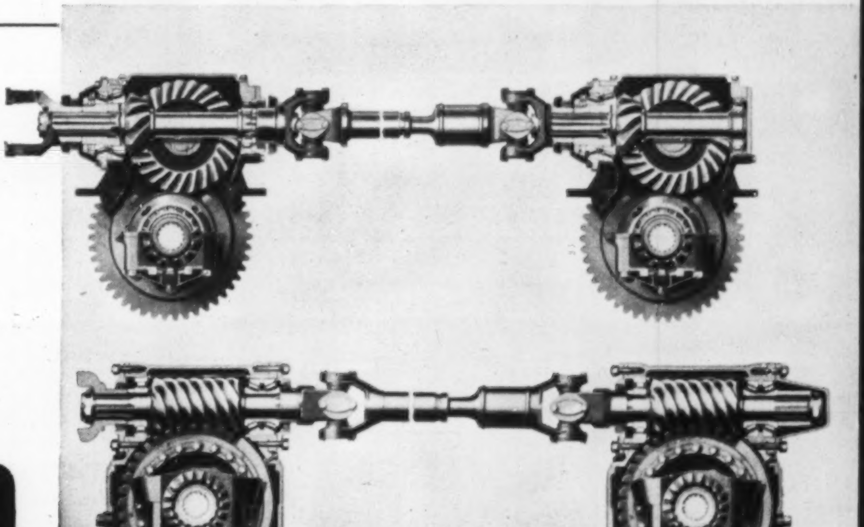
knots

Timken has it!

TIMKEN
Detroit
AXLES
TIMKEN-DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32, MICHIGAN
The Accepted TDA CO *Standard*
TRADE MARK REGISTERED

"TORTURE-TESTED"
to Save Money on the Job

WORLD'S LARGEST MANUFACTURERS OF AXLES FOR TRUCKS, BUSES AND TRAILERS



Choose from 2 types of tandem drive rear axle units for "Million Mile" performance

1. Top-mounted hypoid-helical double-reduction final drive. First reduction is hypoid gear and pinion—second is helical spur-gearing. Hypoid gearing, developed for heavy-duty trucks by Timken-Detroit, assures outstanding performance and low maintenance costs for operators everywhere. Large pinions, greater tooth contact give TDA hypoid-helical gearing the ability to stand the "gaff" of extreme shock loads and hard, grueling hauling service.
2. Famous *patented* FJ worm gearing, pioneered by Timken-Detroit. "Through Drive" type . . . direct transmittal of engine torque through forward driving axle to rear driving axle. Permanently silent . . . simple, sturdy . . . stands extreme shock-loads without damage. Large diameter worm and worm wheel . . . increased capacity roller bearings . . . easy lubrication . . . light weight make FJ highly desirable for high speed service on any kind of grades.

Plants at: Detroit, Michigan
Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio • New Castle, Pennsylvania

MATERIALS AND LABOR PRICES

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR
All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)

		Short Leaf Y. P. and Douglas Fir									Long Leaf Y. P. Merchantable grade up to 20 ft.		Plywood Rail freight increment (See note for base price)	
		1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	⅝"	¾"
Atlanta	†	$77.00	$80.50	$71.50	$74.00	$77.50	$81.00	$79.00	......	......	......	......	$22.32	$27.24
Baltimore	*	82.00	84.00	75.00	75.00	75.00	80.00	110.00	......	......	$153.00	$156.00	25.92*	31.60*
		102.00g	*102.00g*	*89.50g*	*89.50g*	*89.50g*	*89.50g*	*94.00*	*$106.00*	*$106.00*				
Birmingham	†	80.50	82.50	70.50	80.50	83.50	85.50	95.50	......	......	115.50	155.50	21.78	26.55
		75.50	*75.50*	*70.50*	*70.50*	*70.50*	*69.50*	*75.50*	*75.50*	*75.50*	......	......		
Boston		95/100a	100/110a	88/102a	90/104a	95/106a	97/110a	......	......	......	......	......	25.92*	31.60*
	1	*94.00a*	*94.00*	*96.50*	*97.25*	*97.25*	*98.75*	*100.00*	*106.00*	*106.00*				
Chicago	**	95.00	98.00	86/87	95.00	97.00	100.00	104.00	......		132.00	132.00	22.45*	27.37*
		97.00	*97.00*	*99.00*	*101.00*	*102.00*	*104.00*	*110.00*	*110.00*	*110.00*				
Cincinnati	*	91.25	97.00	81.25	90.25	97.00	99.25	113.00	......	......	134.50	134.50	25.00*	30.48*
		105.50	*105.50*	*107.50*	*106.00*	*107.00*	*106.00*	*132.00*	*132.00*	*132.00*	......	......		
Cleveland	**	88.00	90.00	85.00	91.00	95.00	98.00				......	......	25.37*	30.93*
		......	......	*98.00*	*99.00*	*99.00*	*99.00*	*109.00*	*109.00*	*109.00*				
Dallas	k†	65.00	72.00	65.00	65.00	65.00	65.00	130.00	......	......	130.00	128.00	18.72	22.80
Denver	*	*Not in stock*		*101.00*	*101.00*	*101.00*	*102.00*	*122.00*	*135.00*	*140.00*	......	......	13.92	16.98
Detroit	‡	108.00	112.00	100.00	108.00	113.00	115.00	......	......	......	......	......	25.00*	30.48*
		91.50	*93.50*	*100.25*	*101.25*	*98.25*	*96.00*	*108.50*	*115.00*	*115.00*	......	......		
Kansas City	*	105.50	105.50	105.50	103.00	106.00	......	......	......	......	......	......	16.56	20.16
		109.00	*109.00*	*109.00*	*109.00*	*109.00*	*112.50*	*155.00*	*155.00*	*155.00*	......	......		
Los Angeles	1	*95.00*	*95.00*	*95.00*	*95.00*	*95.00*	*95.00*	*123.00*	*128.00*	*123.00*	......	......	16.61*ab	20.25*ab
Minneapolis	#	*135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*155.00*	*155.00*	*155.00*	......	......	19.89*	24.25*
Montreal		ab85.00	97.00	85.00	88.00	100.00	......	......	......	......	......	......	.....	.....
		110.00	*110.00*	*110.00*	*110.00*	*110.00*	*110.00*	*105.00*	*105.00*	*105.00*	......	......		
New Orleans	†	100.00	100.00	92.50	85.00	90.00	94.00	118.00	......	......	150.00	148.00	18.72	22.80
	†	*97.00*	*101.00*	*109.50*	*109.50*	*107.50*	*107.25*	*107.50*	*117.50*	*107.50*	......	......		
New York	3	105.00	108.00	110/113	115/120	115/120	120/125	150/160	......		220/250	220/250	25.92*	31.60*
		......	......	*Range from $115.00 to $120.00*				*135/150*	*145/155*	*145/155*			.....	.....
New York	**	80.00	82.00	69.00	82.00	84.00	85.00	116.00	......		190.00	190.00	.....	.....
		88.00	*89.00*	*92.00*	*92.00*	*93.00*	*93.00*	*105.00*	*114.00*	*114.00*				
Philadelphia	‡			Range from $110.00 to $127.00				110/127	......	......	210/220	210/220	25.92*	31.60*
				Range from $120.00 to $150.00				*130/140*	*150.00*	*150.00*				
Pittsburgh	†			Range from $95.00 to $100.00				110/120	......	......	110/120	115/125	25.92*	31.60*
				Range from $110.00 to $120.00				*130/140*	*140/155*	*140/155*	......	......		
St. Louis	#c	104.00e	106.00e	97.00d	105.00d	113.00e	116.00e	......	......	......	......	......	18.72	22.80
		......	......	*112.00i*	*119.00e*	*118.00e*	*114.00e*	*141.00e*	*150.00*	......	......	......		
San Francisco	A†	*57.00*	*57.00*	*63.00*	*62.00*	*62.00*	*61.00*	*61.00*	*62.00*	*62.00*	......	......	12.22*a	14.91*a
Seattle	†	*75.00*	*75.00*	*75.00*	*75.00*	*75.00*	*75.00*	*85.00*	*85.00*	*85.00*	......	......	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* a Spruce b Tax exempt. c 5M lots. d 8–12 ft. lengths. e 8–16 ft. lengths. g No. 1 common. i 8 ft. lengths k No. 3 common. n ⅓ #1, ⅓ #2 & ⅓ #3. A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4′ by 8′ panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅝", $159.00; on ¾", $181.00. Exterior plyform ⅝" $179.00, ¾" $203.00. For other centers add rail freight increment from table on proper size Oiling and edge sealing charges included. a Lower rate by water shipment b 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	Window Glass: Discounts from jobbers list, Feb. 1, 1950a. Single or Double Thickness: A quality	B quality	Explosives: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2365
Baltimore	78%d	80%d	.2365
Birmingham	83%	83%	.1840
Boston	77–10%	77–10%	.2365
Chicago	76%	76%	.2365
Cincinnati	78%	78%	.2365
Cleveland	76–10–10%	76–10–10%	.2765
Dallas	75%	75%	.2440
Denver	79%	79%	.2415
Detroit	78–10–10%	78–10–10%	.2365
Kansas City	80–10%	80–10%	.2415
Los Angeles	73%	78%	.2390
Minneapolis	75–10%	75–10%	.2415
Montreal	40–5%bc	40–10–5%b	21.35h
New Orleans	78%	77%	.2415
New York	80–10%	80–10%	.3975g
Philadelphia	78%	80%	.2365
Pittsburgh	82%	82%	.2090
St. Louis	80–10%	80–10%	.2415
San Francisco	70%	70%	.2365
Seattle	73%	76%	.2390

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U.S.; $1.75 per 100 lbs. higher in Canada.

Glass; a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. b Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. c Single thickness. d Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. h F.o.b. Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10.

40% Ammonia Gelatin price ranges in other than urban areas, per lb.
(except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215 – .229	.2415 – .249
Rocky Mtn. States	.189 – .2015	.2215 – .229	.2415 – .2545
Pacific N. W. States	.1865 – .199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165 – .219	.2365 – .2415

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail: Pine*	By Rail: Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.—3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots;

		6"x8"x8′ Untr.	6"x8"x8′ Tr.	7"x9"x8′6" Untr.	7"x9"x8′6" Tr.
Boston	Oak i	....	....	....	....
	Pine i	....	....	....	....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	....	3.40a	....	4.30/4.40a
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	3.10	....	3.90	....
	Red Oak	2.70	3.70a	3.20	4.60a
	Sap Pine or Cypress	....	3.55a	....	4.50a
San Francisco	Douglas Fir	2.15ef	3.15ef	2.90bf	4.25caf
Montreal	Birch or Maple	....h	....h	....h	....h

Tr.—Treated; Untr.—Untreated. a Creosoted. b 7" x 9" x 8′. c Empty cell. e Green. f F.o.b. cars. h No constant price available. i Not available

CHEMICALS

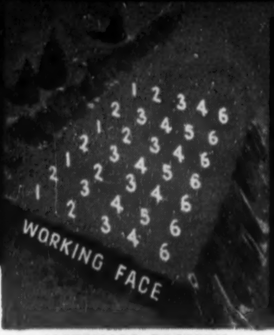
Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.095
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.75
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35

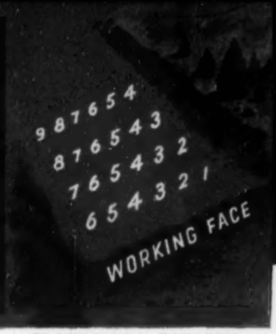
1

2

Throw controlled... breakage good



ALTERNATE PATTERN



PROGRESSIVE PATTERN

3

A well placed, well broken final pile—like the one in the picture—tells the story of another successful ROCKMASTER® blast.

This side-hill cut is one of many that was blasted by the Morrison-Knudsen Co., Inc. and Ralph E. Mills Company through the rugged terrain of West Virginia for the new West Virginia Turnpike. By using a ROCKMASTER pattern the contractor obtained maximum breakage and controlled throw. The rock was blasted toward the up-hill slope . . . not scattered into the valley below.

The delays on the up-hill side of the slope were fired first, giving relief for the following rows. Since explosives force follows the line of least resistance, the general heave of the burden was up the slope toward the relief.

ROCKMASTER is the answer to any blasting problem where control of throw is a necessity, yet good displacement is needed for economical digging. For complete information on Atlas explosives and the ROCKMASTER Blasting System, ask your Atlas representative for a copy of the new Atlas Explosives Catalog.

ATLAS

ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY,
WILMINGTON 99, DELAWARE
Offices in principal cities

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, in paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.00	$327.00	$342.00	$381.00	$27.38	$27.38	$19.00	$17.50	$.....
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00k	41.00k	32.00	21.50	.....
Birmingham	126.00p	136.00p	......	284.00p	......	......	26.50ff	32.00gg	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	383.25†	......	......	36.85p	39.85p	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	......	......	......	26.00	28.00	30.80	26.00	.....
Cincinnati	185.00j	195.00j	260.00jdd	......	......	......	45.00j	46.00j	26.00j	26.00j	.....
Cleveland	170.00**	181.00**	......	......	......	......	34.50	34.50	28.25	23.25	32.00ee
Dallas	......	118.00	......	......	......	......	19.75	35.25	32.00	21.80	.....
Denver	......	......	......	......	......	......	34.00	41.00	34.80bb	28.00bb	34.00bb
Detroit	130.00	138.00	259.00	......	317.25	362.60	37.75cc	36.75cc	33.60	28.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	28.50	.....	32.00	26.00	28.50
Los Angeles	r	r	r	r	r	r	27.50§	.....	34.00	34.00	35.00
Minneapolis	175.00p	196.00p	407.00p	196.00v	......	......	35.00vp	45.00	39.00bbe	29.00bbe	41.00bbde
Montreal	165.00aq	181.00au	325.00au	230.00	248.00e	......	39.50	46.00	34.80	22.00	13.75u
New Orleans	170.00	170.00	310.00	380.00	......	......	31.00	.....	.....	28.00	28.00
New York	147.30h	157.10h	216.00ch	238.10hn	......	......	38.00	.....	36.00	32.00	.....
Philadelphia	145.30	155.00	290.60	348.70	......	......	30/34	35/42	25.00	23.00	2.97
Pittsburgh	118.00	126.00	192.00	224.00	286.00	328.00	36.00	46.00y	25.00	23.00	2.97m
St. Louis	142.00cc	160.00cc	319.00cc	465.00cc	439.00	621.50	40.00sl	36.00s	.90saa	.75saa	1.25aaspes
San Francisco	156.85a*	177.10a*	235.30dda*	......	......	......	37.00	.....	26.60	26.60	2.65m
Seattle	223.00cc	230.00cc	......	240.00ccw	......	......	34.00s	49.00s	42.00shh	37.50	3.90mhh

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-8 cell. *d* Pulverised hot. *e* 5%, 10th following month. *g* 5¾ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7¾ x 7¾ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5¼ x 8 x 11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$16.25	$28.275	$3.26	$3.51	$3.01	$2.74	$3.01	$2.98	$0.405	$39.75
Baltimore	16.00	27.90	2.75	4.25	3.35	2.66	4.43	4.43	.47	45.56
Birmingham	16.25	28.275	3.90	3.40	....	2.93	2.93	2.93	....	42.00ee
Boston	16.00	27.90	....	...	....	2.98gg	2.77og	2.77og	.42g	48.50g
Chicago	16.00	27.90	....	..	...	3.29‡u	3.29‡o	3.29‡o	38.00‡bbr	48.00‡
Cincinnati	16.00	27.90	..	....	....	2.66	2.735	2.735	.46y	47.86
Cleveland	16.00	27.90	2.34pgg	2.59gg	2.63gg	2.97q	2.66o	2.66o	.43y	40.70hh
Dallas	16.25	28.65	....	4.05	....	3.50q	3.75o	4.35o	.36	58.50hh
Denver	16.50	28.40	3.29	5.15	3.04	2.66	2.61o	2.61o	.43ff	47.00
Detroit	16.00	27.90	2.35	3.25	2.50	2.97	2.66f	2.66	.53	44.00
Kansas City	16.00	28.65	....	2.71ys	2.65	3.40	3.20o	3.20o	.43	53.00
Los Angeles	16.00	28.15	3.30s	4.50s	4.20s	2.63s	1.70es	l	.58s	l
Minneapolis	16.00	29.88/28.02	....	....	....	2.74idd	2.50hidd	2.50hidd	.44idd	42.00r
Montreal	.....	20.95	2.95Dff	4.05Eff	3.25Fff	4.00t	3.65tf	3.65t	1.06ht	3.30ht
New York	16.00	27.90	....	....	....	2.79σ	2.50σo	2.50σo	.44σz	42.00*
Philadelphia	16.00	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	16.00	27.90	2.65	2.85	3.15	2.95	3.00o	3.00o	.38	45.00
St. Louis	16.00	27.90	....	....	....	2.79	2.50h	2.50h	.42y	43.00
San Francisco	16.00	28.15	2.40	....	3.40	2.95	4.00aa	....	.49	.....
Seattle	16.00	28.40	3.07mcc	2.93mcc	....	3.58mgcc	3.05hmcc	....	.59mcc	52.00mcc

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum, 50 gal. ea. *q* Per 90-lb. roll. *r* F.o.b. factory, Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement; Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt pitch in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D.* Std Black. *E.* Ready-mixed. *F.* Over 80% ferric oxide. * Aver. wt. approx. 425 to 550 lbs. drum. σ Freight allowed to destination not exceeding .50 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.10	$2.50	$2.75	$2.50	$2.90	$2.75	$2.90	$1.28	$1.28
Baltimore	3.20d	2.75	3.275c	3.10/3.25	3.075c	2.975	2.975f	1.675c	1.675c
Birmingham	3.15	2.40	2.825k	2.245	2.62	2.875	2.875k	1.30	1.40
Boston	3.185e	2.75	3.15c	3.20	3.20l	3.13H	3.10d	1.99ew	1.99ew
Chicago	3.40k	3.15g	3.20m	3.00m	3.525g	3.37f	3.24e	2.35k	2.35k
Cincinnati	3.225	2.925	2.90k	2.75/3.00	3.10	3.12N	3.175k	2.02	2.02
Cleveland	3.25t	3.20#	3.20c	3.20	3.20	3.20	3.20e	2.45	2.45
Dallas	3.50	2.625	2.75	2.75	3.437	2.90	2.90	1.40	1.40
Denver	3.50	2.775	2.75	2.705	3.30	3.00	2.97	1.80	1.80
Detroit	3.33x	3.08x	3.23a	3.23x	3.32l	3.22H	3.15k	2.28x	2.28x
Kansas City	3.625w	2.675w	2.805w	2.64/2.885w	3.25w	2.987O	3.075k	2.03	2.03
Los Angeles	3.285G	2.70	2.925k	2.57	3.437S	3.10	3.225e	2.05	2.05
Minneapolis	3.125	2.70	2.82	2.65	2.90w	3.20n	2.875	1.95	1.95
New Orleans	3.05	2.42	2.80m	2.60	2.625	2.925k	2.75e	1.375	1.375
New York	3.874br	3.57bJ	3.975p	3.84J	4.15A	3.63asF	3.815bL	2.415P	2.415P
Philadelphia	3.62i	3.10	3.51iM	2.875/3.625	3.55be	3.55u	3.515q	1.875	2.175
Pittsburgh	3.475k	3.20k	3.475k	3.325k	3.30k	3.35	3.00	2.025k	2.025k
St. Louis	3.62c	2.975A	3.025k	3.05	3.25k	3.28c	3.05E	2.095k	2.095k
San Francisco	3.475bk	2.905k	3.075k	2.66	3.45ak	3.225U	3.275K	2.075k	2.075k
Seattle	3.40d	2.75d	2.95d	2.78	3.25d	2.925	2.95T	2.25	2.35d
Montreal*†	2.00	1.80	1.90	1.70	2.00	1.90	1.90	1.25	1.25

* Cost of living bonus now included in basic wage. # Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

a 6 hr. day. b 7 hr. day. c Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF d Incl. 10¢ H&WF. e Incl. 6¢ H&WF. f Incl. 6% WF. g Incl. 11½¢ WF. h $2.625 homes & housing plus 7½¢ WF. i Incl. 12¢ WF and 15¢ PF. j Incl. 10½¢/hr. WF. k Incl. 7½¢/hr. WF. l Incl. 4% VF. m Incl. 5¢/hr WF. n Incl. 20¢ H, W, Ins., Vac. & Retirement. o Incl. 10¢ PF, 8¢ WF. p Incl. 3% WF, 3% PF. q Incl. 3½% WF and 20¢ PF. r Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. s Incl. 7½¢ H&WF. t Incl. 1½% WF. u Incl. 10¢ WF. v Negotiating. w Incl. 8¢ WF. x Incl. 22½¢ WF. y Incl. 7½¢ IF, 5¢ H&WF. A Incl. 15¢ WF, 15¢ PF & 20¢ B.F. B Incl. 3% WF. C Incl. 2½¢ H&WF. E Plus 5% WF, plus travel pay per day. F Plus $4/per day Annuity contrib. G Incl. 11¢ H & WF. H Incl. 7¢ WF. I Incl. 15¢ H&WF. J Incl. 5% WF, 6PH. K Incl. 10¢ H&WF 10¢ VF, 2½% PF. L Incl. 3% WF, 3% PF, 2% VF, 1% EF. M Incl. 7½¢ PF. N Incl 1% WF O Incl 2% WF, 1% PF. P Incl. 5% WF, 6 PH. R Incl. 12¢ WF and 1¢ apprentice. S Incl. 12½¢ H and WF. T Incl. 21¢ H, W & VF. U Incl 7½¢ WF, 4% VF, 1% PF.

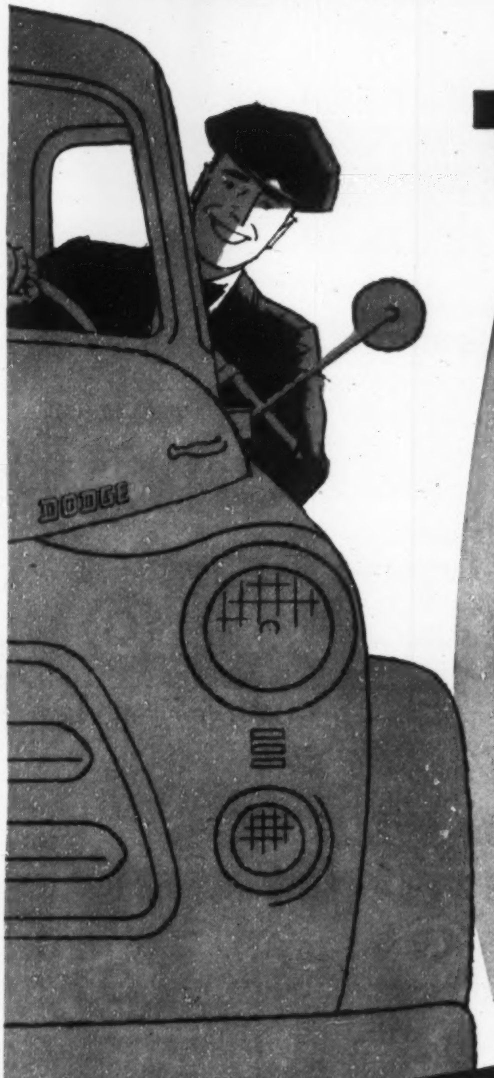
MEXICO CITY PRICES

In Pesos, F.o.b. City		Jan. '54	Feb. '54
Common Wages—Building (8 hr. day) (Peons)	av. per hr:	1.00	1.00
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr:	1.00	1.00
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr:	2.25	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day) .... Remachadores.	av. per hr:	1.13*	1.13*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1224.23	1200.53
Reinf. Steel, Corr. Rods			
¼" x 11 meters	per ton	1200.00	1223.50
⅜" x 11 meters	per ton	1200.00	1223.50
½" x 11 meters	per ton	1200.00	1223.50
⅝" x 11 meters	per ton	1200.00	1223.50
¾" x 11 meters	per ton	1200.00	1223.50
1" x 11 meters	per ton	1200.00	1223.50
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	60.00	60.00
Rose Gravel	per tr. load	55.00	55.00
Cement, Std. Port. (Tolteca)	per ton	169.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	850.00	850.00
1st Class Pine	per M ft.	1300.00	1400.00
2nd Class Pine	per M ft.	1200.00	1300.00

*1st & 2nd fl. add 40% ea. addn'l floor over preceding one

ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $3.100 **ENR Common Average:** $1.947.

New DODGE "Job-Rated" TRUCKS



All-new Dodge trucks

offer a better deal in low operating and upkeep costs, too . . . are priced with the lowest. Make it a point to call your friendly Dodge dealer—or drop in to see him soon. You'll like these new trucks!

WITH

NEW! Roomiest Cab! Wide, 3-man cab with easy-chair seat. 951 sq. in. windshield and best all-around visibility of any make.

NEW! Sharpest Turning! 39° turning angle, short wheelbase design for top maneuverability. Easiest handling trucks there are!

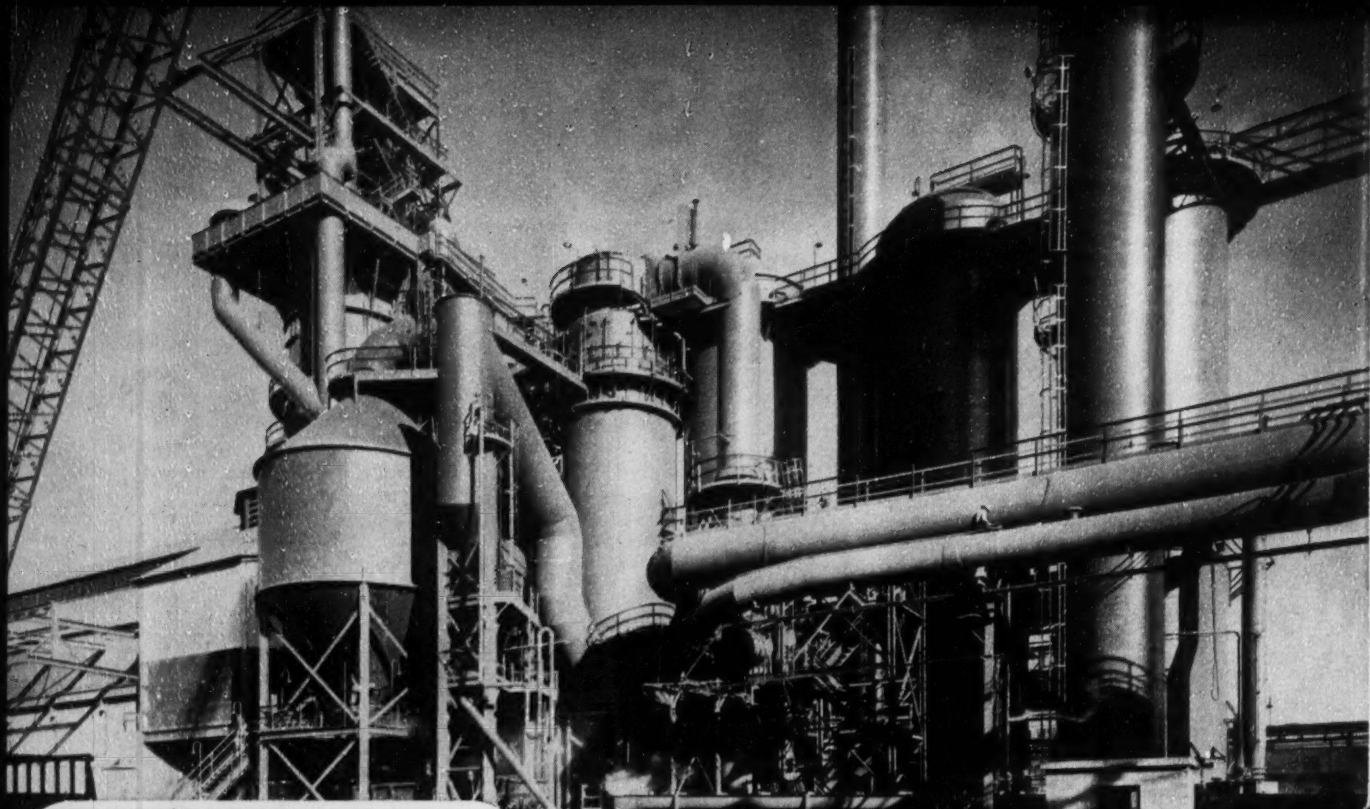
NEW! V-8's and Sixes! Most powerful V-8's in popular field—133 to 172 h.p. Plus famous Dodge Sixes. 7 engines in all.

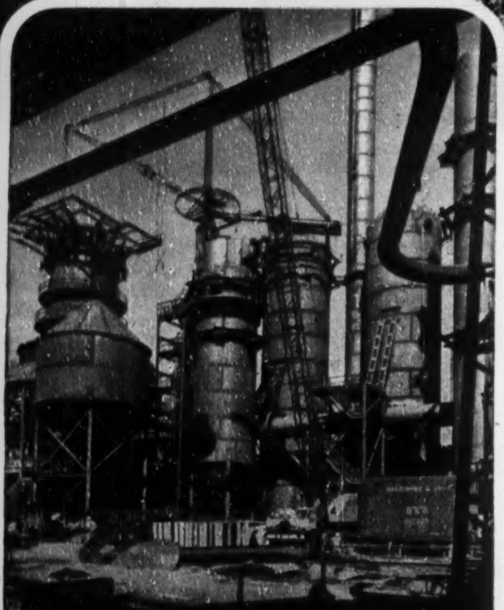
NEW! Low-Built Lines! Built low for better road stability, easier loading, ground-hugging good looks. Lower step for easier cab entry.

ALL ADD UP TO

"A better deal for the man at the wheel"

See "Break The Bank" with Bert Parks on TV (ABC, Sundays).
Hear "The Roy Rogers Show" on radio (NBC, Thursdays).
See "Make Room For Daddy" with Danny Thomas on TV (ABC, Tuesdays).
Enter the Dodge 40th Anniversary All America Contest. See your dealer.





Completed project (top) and construction view of blast furnace shell, hot blast stoves, stack, dust catcher, and inter-connecting ducting and walkways. Built for Pittsburgh Coke and Chemical Company, Neville Island, Pittsburgh, Pa.

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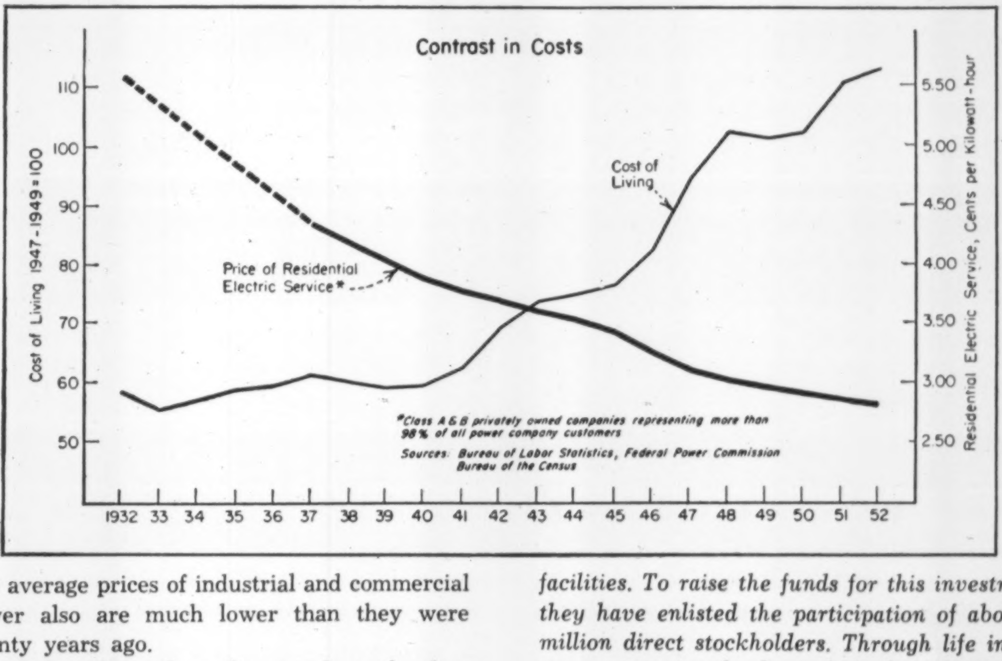
A MESSAGE TO AMERICAN INDUSTRY • ONE OF A SERIES

A 20-YEAR RECORD . . .

The Electric Power Companies' Case for Public Confidence

An economic study of the record of the investor-owned electric power companies of the United States over the past twenty years underwrites their claim to public confidence today. A key factor of this record is set forth by the chart in the middle of this page. This shows that while the cost of living as a whole has almost doubled, the average price of electric energy for residential use in the United States has been cut in half.



The average prices of industrial and commercial power also are much lower than they were twenty years ago.

Such a study confirms the record on other key accomplishments of the electric power companies during the past two decades.

They have not failed, either in peace or war, to meet the nation's rapidly expanding electric power requirements. In paying tribute to the performance of these companies during World War II, J. A. Krug, Director of the Office of War Utilities, said, "Power has never been too little or too late." The same can be said for the entire period of the past twenty years.

To be ready with enough power — on time — the electric power companies have expanded their production fourfold since 1933. This has required an investment of over $17 billion in new facilities. To raise the funds for this investment they have enlisted the participation of about 3 million direct stockholders. Through life insurance companies, banks and similar institutions, about 90 million Americans — more than half of the nation's total population — have become investors in electric power companies. By thus relying on private investment for their expansion, the power companies have provided their *plant and operating equipment without burden on the taxpayer.*

In addition, the investor-owned companies have paid about $12 billion in taxes to various governments — national, state and local — over the past twenty years. Unlike government-owned and -operated systems, they have received no public subsidies. When taxes and subsidies are taken into account, the rates for electricity charged by the investor-owned companies have been as low as, or lower than, those charged by government-owned and -operated systems.

Many Americans do not appreciate the job that the power companies have done over the past two decades. That is due, in part, to the public memory of financial abuses by some utility holding companies during the 1920's. This memory obscures a clear and unprejudiced view of the progress since those days. And some of the all-out advocates of reliance on government rather than on regulated private enterprise for the development of our power resources do their best to keep this memory of the past alive in the present.

An Impressive Case

Some special cases of electric power development may involve problems for which the investor-owned companies are unable to provide full solutions. This may be true, for example, of some large multiple-purpose projects that combine electric power generation with related developments such as the improvement of navigation, flood control and the irrigation of arid lands. Some of the economic and administrative problems imposed by such projects are not well adapted to effective handling by private enterprise. Flood control and the improvement of navigation, for example, usually involve the provision of much costly service over and above the cost of producing power.

It is true, however, that in some cases development of the electric power side of multiple-purpose projects by private enterprise may well be more feasible than would appear from statements by some government power advocates. And the record indicates that even in those projects on which both the power generation and the other services are handled by public authority, it may well be desirable to have the investor-owned companies assume the transmission and distribution functions.

Our study of the record of the investor-owned and -operated companies over the past twenty years has led us, of course, behind the statistics that bear on the wisdom of giving them a priority in the development of our power resources. It reveals that these enterprises are manned by people who, through lifetime experience, are peculiarly conversant with the needs of the communities they serve. They have given the consumer notably good service while conforming to standards set and enforced by public regulatory commissions. They have won the confidence of the investing public. By their nature and their experience they are competent to handle any power program that can be demonstrated to be economically sound.

The Paramount Public Interest

By their economic performance during the last twenty years, the electric power companies have earned the confidence of the public. By relying on these companies to meet its electric power requirements the public will fully protect its economic interest in ample and efficient service at fair prices.

That is where our study comes out. Our findings do not touch the political consideration that private operation of electric utilities under public regulation is a safeguard against further concentration of both political and economic power in a federal government that already commands too great a concentration. But if these findings make an economic case for preferring power development by tax-paying business as against power development by governmental agencies, they clear the way for an appeal to the paramount public interest in safeguarding our personal and political freedoms against the further encroachment of government.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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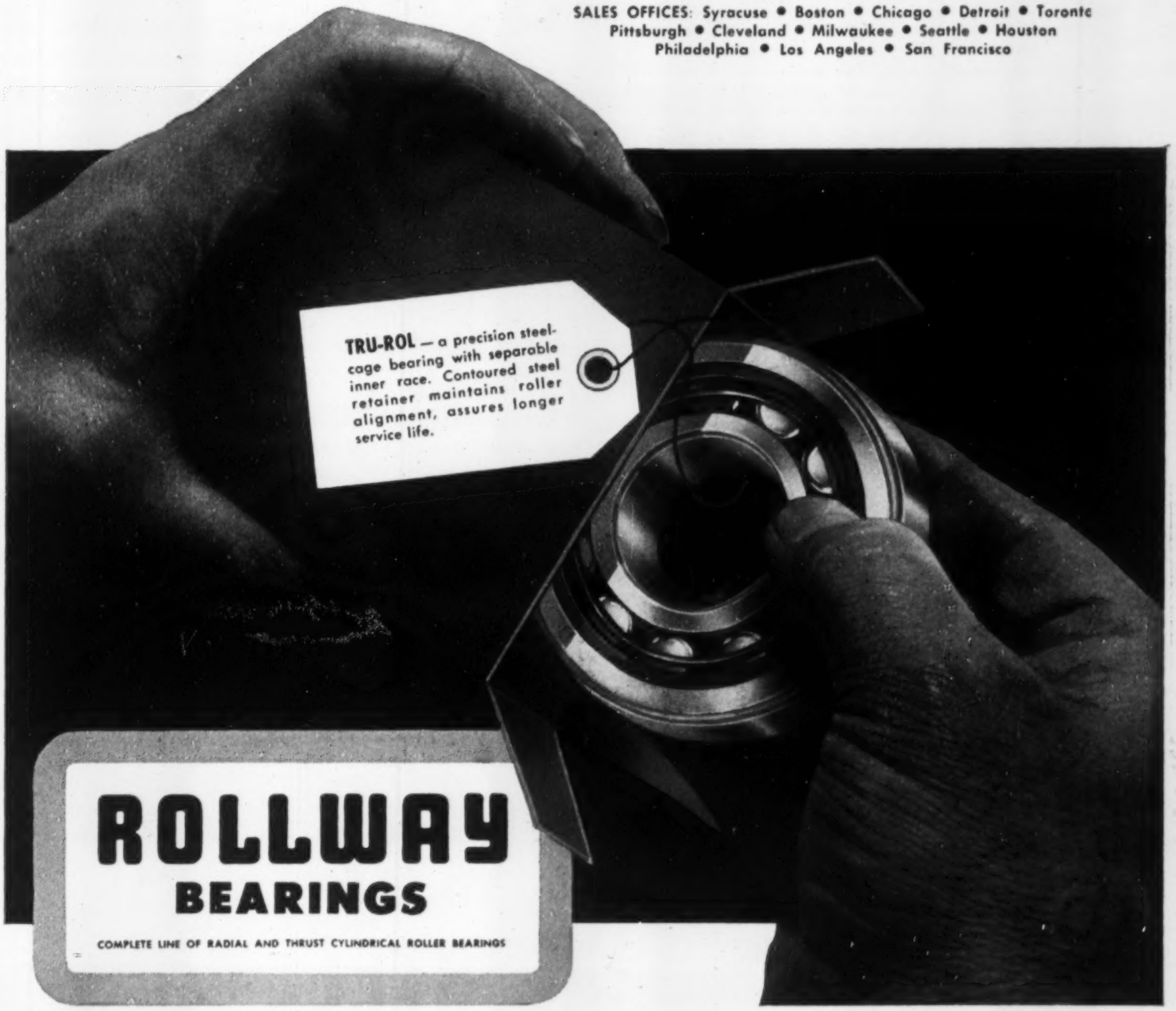

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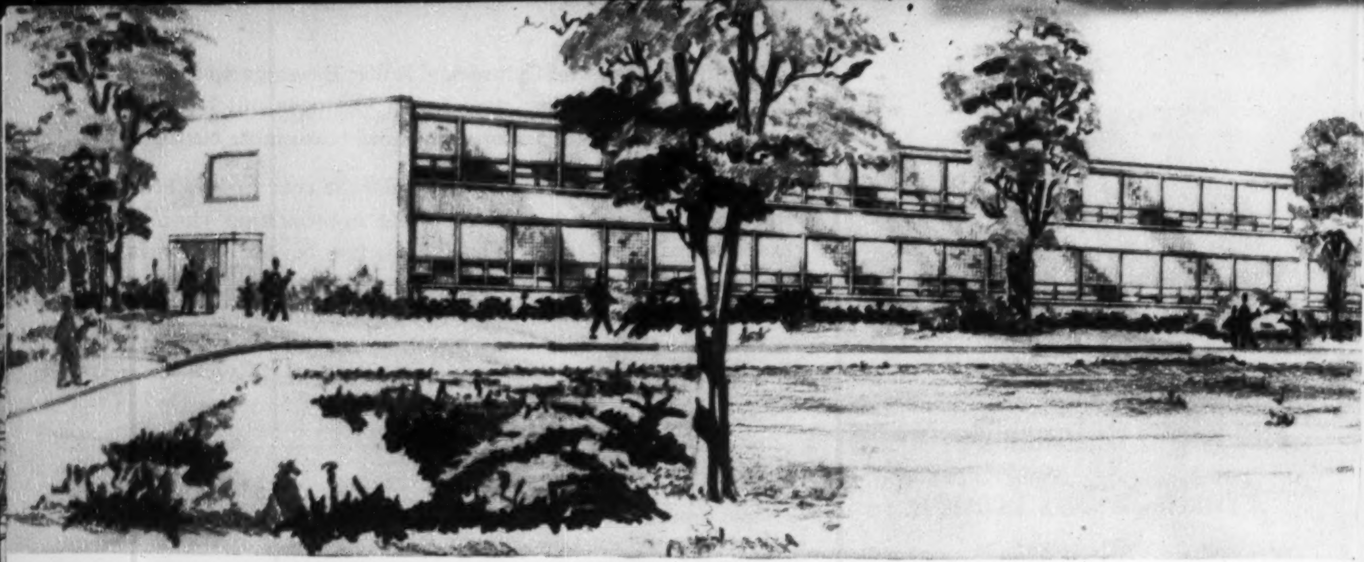
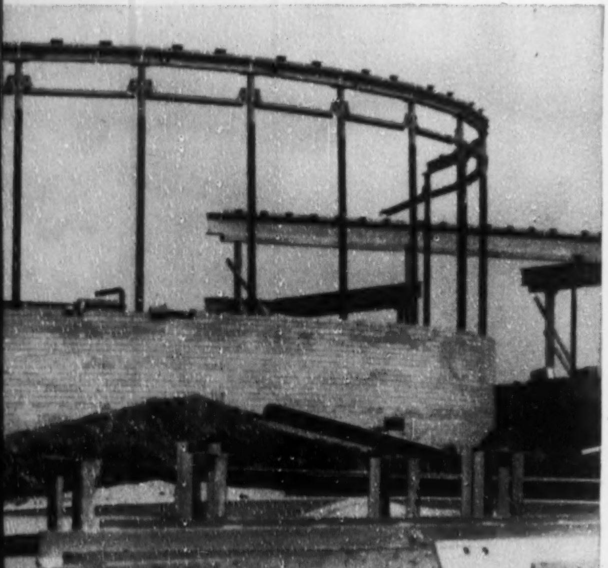


IN THIS ULTRA-MODERN HIGH SCHOOL

USS Structural Steel

TOPS THE HONOR ROLL FOR STRENGTH, SAFETY AND ECONOMY



THE MODERNISTIC curved music room under construction. Long span trusses eventually formed the framing for the roof.

▼ Public school construction today requires careful selection of structural materials—for the safety of the children and for the strength and permanence of the building. Yet, since public funds are limited, the architect's eye must always be kept cocked in the direction of economy. That's where USS Structural Steel wins top honors.

The structural steel framework of the new Edison Junior High School, West Mifflin Township, Pennsylvania, is an excellent example of how strength and permanence can be combined with economy—economy in the cost of materials *plus* economy in erection cost.

This efficiently-designed two-story school building is completely supported by a framework of USS Structural Steel—channels, beams, and angles, a bow-string truss over the gymnasium and a long span truss over the auditorium. In such applications, Structural Steel offers many well-recognized advantages.

For instance, Structural Steel is the most economical of load carrying materials. Yet, it is the strongest. It will withstand more abuse than other structural materials—effectively resisting tension, torsion, compression and shear. Enclosed in buildings, it will last indefinitely—requiring no maintenance. Equally adaptable to riveting, welding, or bolting, Structural Steel can be erected in any weather in which men can work. And since steel members are fabricated indoors, weather can have no effect on the quality of workmanship.

For further information on construction with steel, write to the United States Steel Corporation, 525 William Penn Place, Room 4333, Pittsburgh 30, Pa.

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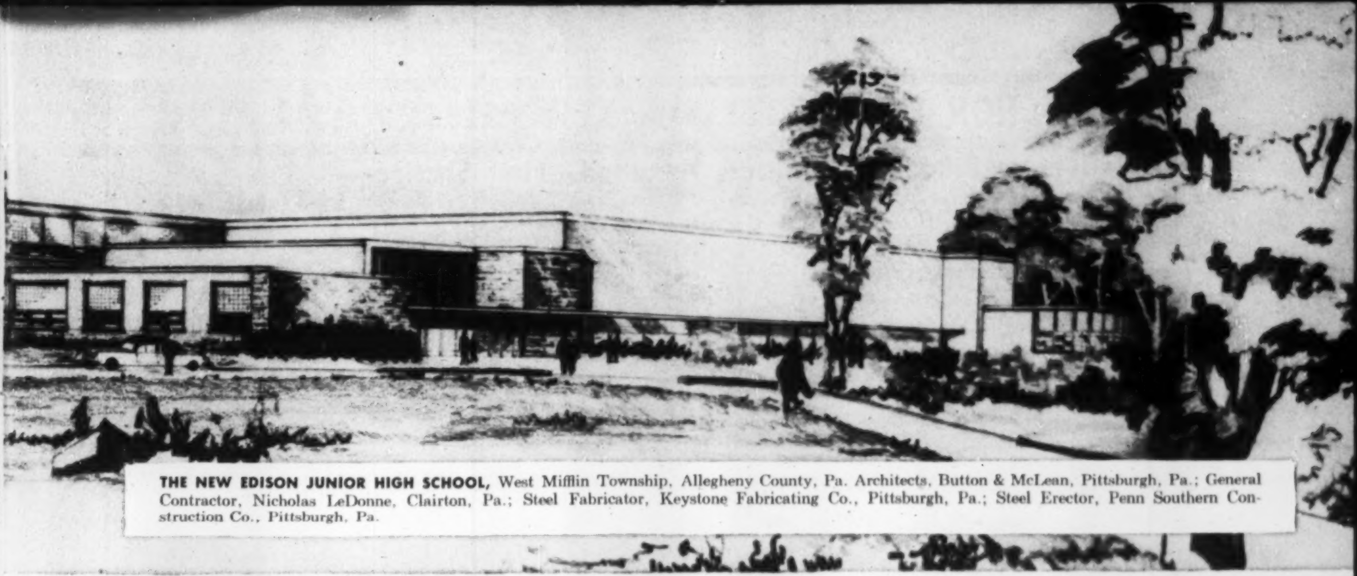
USS STRUCTURAL STEEL

4-855

UNITED STATES STEEL



THE NEW EDISON JUNIOR HIGH SCHOOL, West Mifflin Township, Allegheny County, Pa. Architects, Button & McLean, Pittsburgh, Pa.; General Contractor, Nicholas LeDonne, Clairton, Pa.; Steel Fabricator, Keystone Fabricating Co., Pittsburgh, Pa.; Steel Erector, Penn Southern Construction Co., Pittsburgh, Pa.

SECTION OF the structural bow string truss roof over the 70 x 90-foot gymnasium.

A VIEW of the 18-room, two-story, 60 x 210-foot main classroom section. A wing which angles to the left of this section measures 200 x 120 feet—contains a 600-seat auditorium, a cafeteria, kitchen, shops, and a gymnasium.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M E SCIORRA, F S. DEMBEK, Reports.
J. H. WEBBER, M R. ROESSLER, E R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲ † **N. H., Portsmouth**—MESS and DORMITORIES—B.A. 4/23—U.S. Eng., 857 Commonwealth Ave., Boston, Mass., airmen's mess and dormitories, Air Force Base, ENG-19-016-54-71. $5,000,000. Plans deposit $30 New Hampshire Assoc., 192 Elm St., Manchester, engrs.-archts. CD 12/27/51.

BIDS ASKED—BUILDINGS

Conn., Mansfield—GIRLS PATIENT—B.A. 4/28—State, Ralph G. Macy, P.Wks. Comr., State Office Bldg. Hartford, Conn. BA—X-72, girl's patient bldg., State Training School $750,000. Plans deposit $20. O. C. S. Ziroli, 945 Main St., Hartford, archt. CD 2/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,

Yonkers Constr. Co., 969 Midland Ave., Yonkers, N. Y. LB **$2,120,909**, est. $2,000,000, Contr. 209;

Lane Constr. Corp., 37 Colony St., Meriden, Conn. LB **$1,326,893**, est. $1,400,000, Contr. 209A;

J. **R. Cianchette**, 120 Main St., Pittsfield, Me. LB **$1,146,348**, est. $1,200,000. Contr. 209 B. Sect. 2 grading, drainage, Portland to Augusta. Bids Mar. 25. CD 3/15.

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,

M. **DeMatteo Constr. Co.**, 200 Hancock St., Quincy, Mass. LB **$1,696,009**, est. $1,700,000. Contr. 210;

J. **R. Cianchette**, 120 Main St., Pittsfield, Me. LB **$1,210,964**, est. $1,300,000, Contr. 210A; LB **$756,972**, est. $800,000. Contr. 210B, Sect. 2 grading, drainage, Portland to Augusta. Bids Mar. 26. CD 3/15.

† J. **R. Cianchette**, 120 Main St., Pittsfield, Mass. LB **$80,912**, est. $75,000-$150,000. aprons Dow Air Force Base, ENG-19-016-54-87, BANGOR, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 2/25.

† **George A. Fuller Co.**, 11 Beacon St., Boston, Mass. CA **$833,751**, est. $1,000,000, automotive maintenance shop, Air Force Base, ENG-19-016-54-67, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 11, awarded Mar. 23. CD 3/17, under LB.

† J. **F. McGlane Co.**, 14 Boylston Pl., Brookline, Mass. CA **$405,614**, est. $500,000, bulk storage facilities, Air Force Base, ENG-19-016-54-60, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Whitman & Howard, 89 Broad St., Boston, Mass., engrs. Awarded Mar. 23. CD 2/10.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P Wks., 100 Nashua St., Boston,

G. **Bonazzoli & Sons**, Hudson, Mass. LB **$175,569**, est. $180,000. hy. and bridge Water and Main Sts., Fitchburg. Bids Mar. 23. CD 3/10.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Metropolitan Dist Comn., Parks Div., 20 Somerset St., Boston,

C. J. **Maney Co., Inc.**, 173 Bedford St., Lexington, Mass. LB Item 1 **$2,186,579**, Item 2 **$2,174,920**, est $3,600,000. Contr. 831 Lynnway Hy Gen Edwards Bridge-Lynn Shore Dr., Lynn and Nahant. Edwards Kelcey & Beck, 80 Federal St., Boston, Mass., consult engrs. Bids Mar 25 CD 2/5/52, under Mass., Boston.

▲ **MASSACHUSETTS**—Commonwealth of Mass, Dpt P Wks., 100 Nashua St., Boston,

Campanella & Cardi Constr Co., 780 Jefferson Blvd., Hillsgrove, R. I. CA **$1,471,735**, est $1,500,000 hy. and bridge constr, F 328 (3), Dennis and Yarmouth. CD 3/1, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P, Wks., 100 Nashua St., Boston,

Marinucci Bros. & Co., Inc., 51 Ceylon St., Roxbury, Mass. CA **$2,655,848**, est. $3,150,000 Sect. 3 hy. and bridge constr South East Expressway—parallel to Granite Ave., Willard St., Milton. CD 3/1, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sanders Constr. Corp.**, 415 Congress St., Portland, Me. CA Est. **$7,500,000**. steam electric PLANT addn., Mason Station, WISCASSET, ME. Central Maine Power Co., 9 Green St., Augusta, Me. CD 3/8.

Vara Constr., Inc., 718 Huntington Ave., Boston, Mass LB **$700,415**, est. $700,000. JUNIOR HIGH SCHOOL, Brown St., South Attleboro, ATTLEBORO, MASS. City, Sanford St., Attleboro, Mass. CD 5/27.

Sciaba Co., Inc., 86 Shawmut Ave., Boston, Mass. LB **$514,400**, est. $660,000. elementary SCHOOL Main St. and Cordaville Rd., SOUTHBORO, MASS. Town, School Dpt., Roger Poole, supt., 211 Main St., Northboro, Mass. Bids Mar. 23. CD 3/10.

Frouge Constr. Co., Inc., 74 Goodsell St., Bridgeport, Conn., CA, **$837,000**, Hayestown SCHOOL, off Hayestown Ave., DANBURY, CONN. Town School Bldg. Comn., 20 West St., Danbury, Conn. Bids Mar. 11, awarded Mar. 25. CD 3/17, under LB.

▲ **B. Perini & Sons**, 73 Montwait Ave., Framingham, Mass., LB, **$1,558,000**, municipal PARKING GARAGE, 200 Church St., HARTFORD, CONN. City, 550 Main St., Hartford, Conn. Bids Mar. 26. CD 3/10.

Frouge Constr. Co., 74 Goodsell St., Bridgeport, Conn., LB, **$749,000**, Proj. B/A, K-55, Boy PATIENT Bldg., State Training School and Hospital, MANSFIELD, CONN. State, State Office Bldg., Hartford, Conn. Bids Mar. 24. CD 2/17.

J. **Warren Mylchreest**, 33 Brainard Ave., Middletown, Conn., CA, **$398,883**, elementary SCHOOL, Hubbard District, MIDDLEFIELD, CONN. Town, School District, c/o Supts. Office, 251 Court St., Middlefield, Conn. Bids Mar. 22. CD 3/10.

United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., CA **$560,000**, design and construct, POWER PLANT addns., 2 addns., 112x144 ft. and 72x106 ft., incl. 100,000 kw turbine, NEW MILFORD, CONN. Connecticut Light & Power Co., Selden St., Berlin, Conn.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **N. Y., Sampson**—COLD STORAGE PLANT—B.A. 4/22—Purch. & Contrg. Office, 3650th Military Training Wing, Sampson Air Force Base, Geneva, rehabilitation Cold Storage Plant Bldg. No. 10, McGuire Area, Inv. No. 30-616-54-24. CD 9/14/51.

▲† **N. Y., Niagara Falls**—NATL. GUARD FACILITIES B.A. 4/27—U. S. Eng., 80 Lafayette St., New York, Zone 13, Air National Guard Facilities (FY 54) at Niagara Falls Air Force Base, Serial No. ENG-30-075-54-204. $1,000,000-$1,500,000. Plans deposit $25. CD 10/16/52.

BIDS ASKED—BUILDINGS

N. Y., Valhalla—LABORATORY—B.A. 4/13—Westchester Co. Dpt. P. Wks., County Office Bldg., White Plains, laboratory bldg. addn., new transformer vault at Grasslands Hospital. Plans deposit $10.

Md., Towson—SCHOOL—B.A. 4/14—Baltimore Co. Bd. Educ., Aiburth Rd., Towson, Bear Creek Elementary School, Bear Creek. Plans deposit $25. Smith & Veale, 2127 N. Charles St., Baltimore, archts. CD 9/14/53.

† **N. J., Wrightstown**—DENTAL CLINIC, etc.—B.A. 4/27—U. S. Eng., 121 North Broad St., Phila. 1, Pa., dental clinic, dispensary bldg., McGuire Air Force Base, ENG-36-109-54-226, $500,000. McCormic Lewis & Kopf Assocs., 1321 Arch St., Phila., Pa., archts. and engrs. Extended date. CD 3/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

L. G. **DeFelice & Son, Inc. & C. J. Langenfelder & Son, Inc.**, Nettleton Ave., North Haven, Conn. CA **$11,234,568**, est. $12,394,000, 6.53 mi. Acc., 7.61 mi. Acc. New York State Thruway-Hudson Sect. Subd. 10 (Tuckahoe Rd.-Tarrytown) New England Interch. Ramps P. Q. J. and K; eight misc. sec. roads; Ardsley Village, SH 1053 and Ardsley-Elmsford, Pt. 1, SH 18, Cont. H.T. 53-11, S.T. 53-34, R.C. 53-122, Westchester Co. Bids Feb. 18. CD 2/23, under LB.

▲ **NEW YORK**—Jones Beach State Parkway Auth., Belmont Lake State Park, Babylon,

Lizza & Sons, Inc., 21-23 Orchard St., Oyster Bay, N. Y. LB **$1,222,010**, Contr. No. M-1, grading, paving, misc. work for Meadowbrook State Parkway from Merrick Rd. Interchange to Jones Beach State Park, Nassau Co. Bids Mar. 23. CD 3/3.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

A. **E. Ottaviano, Inc.**, 82 Brook St., Groton-on-Hudson, N. Y., CA **$6,645,331**, est. $7,620,000, 10.29 mi. Suffern-Nyack Sect., New York State Thruway, Rockland Co.;

Yonkers Contg. Co., Inc., 969 Midland Ave., Yonkers, N. Y., CA **$3,835,030**, est. $4,000,000. 3.21 mi. in City of Yonkers, So. Westchester Connection, New York State Thruway, Westchester Co.;

A. **Plotzker Co., Inc.**, 79 Woodstock Rd., Rochester, N. Y. CA **$738,428**, est. $825,000, grade crossing elimination at Washington St., in East Rochester, Monroe Co. Grand total $11,218,789. Bids Dec. 18. CD 12/23, under LB.

Nager Electric Co., Inc., 426 Broadway, Brooklyn, N. Y. CA **$868,000**, electrical work, at 40 toll-plazas located at various traffic interchanges along route of State Thruway, Hudson, Catskill, Mohawk and Ontario Sects., Albany, Greene, Schenectady, Herkimer, Madison, Montgomery, Oneida, Cayuga, Onondaga, Seneca, Genesee, Monroe, Ontario, Erie, Orange, Rockland, Ulster and Westchester Counties, NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Dec. 18. CD 12/23, under LB.

Town, R.D. 5, Volney, N. Y., Own Forces. Approx. **$237,172**, black top 28.2 mi. roads, VOLNEY, N. Y. CD 9/12/51.

▲ **NEW JERSEY**—New Jersey Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Union Building & Constr. Corp., 631 Main Ave., Passaic, N. J., LB, **$2,599,628**, grading, drainage paving and bridges for Section 1 of Garden State Parkway, Contract No. 47, from Hazel St. to Lexington Ave., Clifton, Passaic Co. Bids Mar. 15. CD 2/23.

▲ **Union Switch & Signal Div., of Westinghouse Air Brake Co.**, Swissvale, Pa., LB, **$1,623,095**. automatic block signaling and interlocking sys. for Market St. Subway Ext., and Woodland Ave. ext. of Subway surface trolleys, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. CD 11/9/44.

† **Nickles Brothers**, 4309 Gallatin St., Hyattsville, Md., and **Ahl Brothers**, Branchville, Md., LB, **$646,860**, 48 in. third high pipeline from Dalecarlia to Reno Rds., CIVENG-49-080-54-7, WASH., D. C. U. S. Eng., First and Douglas St. N.W., Wash., 25, D. C. Bids Mar. 17. CD 3/11.

† **Frederick Raff Co., Inc.**, 271 Sheldon St., Hartford, Conn., CA, **$678,110**, avagas and lube oil facilities, road work, Dover Air Force Base, DOVER, DEL. U. S. Eng., 121 N. Broad St., Phila., Pa. Bids Mar. 16. CD 3/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Mayfair Park at Commack Homes**, (Jack Greenman & Bob Grundt), c/o Herman York, archt., 90-04 161 St., Jamaica, N. Y. Owner Builds. **$15,000,000**. 1,000 HOUSES, SHOPPING CENTER, 295-acre tract, Jericho Turnpike, COMMACK, N. Y.

▲ **C. E. Youngdal**, 29-28 41 Ave., Long Island City, N. Y. CA **$818,855**. Northedge Grade SCHOOL, east side of Stewart Ave.; CA **$861,642**, Eastplain Elementary SCHOOL, Delaware Ave., PLAINEDGE, N. Y. Bd. Educ., Union Free School Dist. 18, Plainedge, N. Y. Bids Jan. 21. CD 1/8.

James E. Lowe & Sons, 243 State St., Schenectady, N. Y. CA. Approx. **$350,000**. CHURCH, SCHENECTADY, N. Y. Union Presbyterian Church, 1068 Park Ave., Schenectady, N. Y. CD 5/21.

▲ **Matthew L. Carroll, Inc.**, 101 Park Ave., New York, N. Y. CA **$1,238,600**, general constr. SCHOOL, East Main St., WESTFIELD, N. Y. Bd. Educ., Central School Dist., Westfield, N. Y. Bids Jan. 28. CD 1/4.

▲ **Stearns Constr. Co.**, Box 268, Murray Hill, N. J., Separate Contracts, **$3,000,000**, RESIDENTIAL DEVELOPMENT, Indian Springs, MURRAY HILL, N. J.

(Continued on page 112)

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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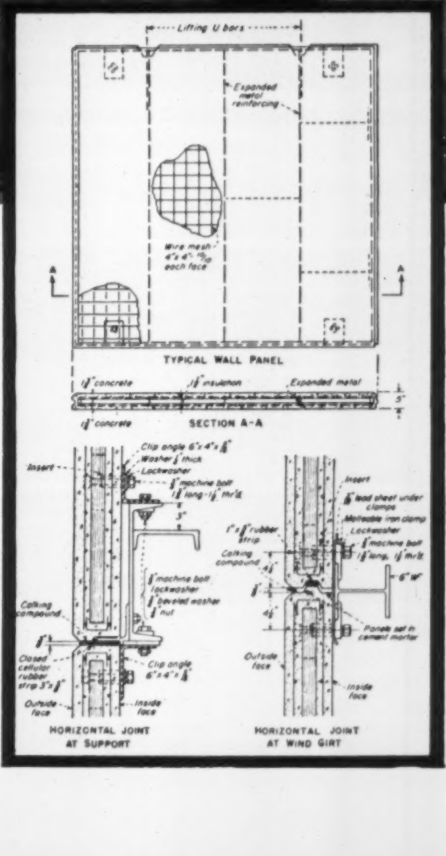
your best bet is
MARIETTA concrete wall panels


Lifting U bars
Expanded metal reinforcing
Wire mesh 4"x 4" each face
A
A
TYPICAL WALL PANEL
concrete
insulation
Expanded metal
5"
concrete
SECTION A-A
Clip angle 6"x 4"
Washer thick
Lockwasher
Insert
machine bolt long
3"
machine bolt
lockwasher
beveled washer
nut
Calking compound
Closed cellular rubber strip 3"x
Clip angle 6"x 4"
Outside face
Inside face
HORIZONTAL JOINT AT SUPPORT
Insert
lead sheet under clamps
Malleable iron clamp
Lockwasher
machine bolt long
1"x rubber strip
Calking compound
6" W
Panels set in cement mortar
Outside face
Inside face
HORIZONTAL JOINT AT WIND GIRT

When MARIETTA panels are specified, there is no gamble with unexpected higher costs or imminent deadlines—the deck is stacked in your favor! These large, easy-to-handle sections bolt quickly and easily to steel framework. Greater areas may now be closed in at a saving of 50% in time, and 30% of cost, over conventional masonry walls.

However, first cost is not the only place where MARIETTA wall panels save you money. Sandwich type construction, with two layers of reinforced concrete separated by rigid insulation permits a wall only 5" in thickness to surpass insulation values of more than 12" of masonry. Cast in muslin lined forms, with a broomed exterior surface, they require no further treatment for a blue chip appearance.

A wide variety of panel sizes is available, cast solid or with insulation to meet your every requirement. Let our Engineering Department help you incorporate these advantages into your next building.

Write for complete details. Literature upon request.

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MARIETTA, OHIO

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TO CUT TRUCKING COSTS

TandemTrac

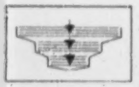
The ALL NEW TANDEM you can AFFORD

LOW INITIAL COST
LOW OPERATING COST
LOW MAINTENANCE COST

Learn how these (and many other) features can boost ton-mile profits

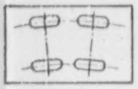
FOR
TRAILING OR PUSHER AXLES
DUAL DRIVE TANDEMS
TRAILER TANDEM AXLES

VARIABLE RATE SPRINGS



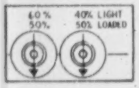
Flat-leaf, progressive springing means empty vehicle gets smooth, resilient ride. Maximum payloads get full, graduated suspension. Load and body damage goes down, ton-mile profits go up.

AUTOMATIC TRACKING



TandemTrac automatically guides wheels around highway curves, aligns them on the straightaway. Unbelievable tire life, greater fuel mileage, mean money saved on all hauling jobs.

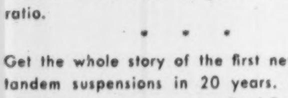
AUTOMATIC LOAD DISTRIBUTION



On trailing and pusher axles TandemTrac puts 60% of the load on the drive axle for empty-truck traction, splits full legal payloads 50-50, automatically. Trailers or dual drives get constant 50-50 ratio.

• • •

Get the whole story of the first new idea in tandem suspensions in 20 years. You can't afford not to . . . you can afford TandemTrac. Write or mail the coupon today.



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1786 Fillmore Ave., Buffalo 14, N. Y.

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Please send literature describing the new TandemTrac Suspension.

NAME ____________ TITLE ________
FIRM ____________________
NATURE OF BUSINESS ____________
ADDRESS ____________________
CITY ________ ZONE ____ STATE ______

(Continued from page 110)

Belluscio & Sons, Inc., 451 Morris Ave., Elizabeth, N. J., CA, **$788,344**, HIGH SCHOOL addns., alterations, SOUTH PLAINFIELD, N. J. Bd. Educ., Hamilton Blvd., South Plainfield, N. J. Bids Feb. 26, awarded Mar. 25. CD 2/4.

Curtis Building Co., Inc., 134 Tyson Ave., Glenside, Pa., Separate Contracts. **$780,000**. RESIDENTIAL DEVELOPMENT, ABINGTON, PA

Custis Woods Corp., 123 S. Broad St., Phila., Pa. Separate Contracts. **$500,000**. APARTMENT, ARDMORE, PA. Karl F. Otto, 128 Buckingham Rd., Rosemont, Pa., archt.

Von Gerbig Assocs., 250 S. Quince St., Phila., Pa. Separate Contracts. **$550,000**. RESIDENTIAL DEVELOPMENT, Deercroft St., BARREN HILL, PA.

Irving A. Miller, Broomall, Pa., Separate Contracts. **$700,000**. RESIDENTIAL DEVELOPMENT, Hillview and Woodview, BROOMALL, PA.

▲ **John McClatchey**, McClatchey Bldg., Upper Darby, Pa. Separate Contracts. **$2,600,000**. RESIDENTIAL DEVELOPMENT, BRYN MAWR, PA.

▲**Chalfont Builders, Inc.**, 4400 D St., Phila., Pa. Separate Contracts. **$1,196,000**. RESIDENTIAL DEVELOPMENT, Rtes. 202 and 309, CHALFONT, PA.

▲ **Ritter Bros.**, 1511 N. Cameron St., Harrisburg, Pa. CA **$1,484,027, general constr.** Senior HIGH SCHOOL in Colonial Park at Houck's Rd. and Locust Lane for Dauphin County Joint School Bd., COLONIAL PARK (P. O. Harrisburg), PA. Central Dauphin School Dist. Auth., Byron Catherman, secy., Penbrook School Bldg., Harrisburg, Pa. Bids Mar. 4, awarded Mar. 25. CD 3/9, under LB.

▲ **C. Shand**, Devon, Pa., Separate Contracts. **$630,000**. RESIDENTIAL DEVELOPMENT, Hunters Lane, DEVON, PA.

Lam & Bucksbaum, 8019 Old York Rd., Elkins Park, Pa. Separate Contracts. **$544,000**. RESIDENTIAL DEVELOPMENT, Cox Rd., ELKINS PARK, PA.

▲ **Holland Development Co.**, Feasterville, Pa., Separate Contracts., **$1,050,000**. RESIDENTIAL DEVELOPMENT, Buck Rd., HOLLAND, PA.

Kedron Homes, Inc., Huntington Valley, Pa. Separate Contracts. Approx. **$500,000**. RESIDENTIAL DEVELOPMENT, various locations, PHILA., PA.

Albert Goldberg, 5658 Berks St., Phila., Pa. Separate Contracts. **$550,000**. RESIDENTIAL DEVELOPMENT, 5 St. and Cheltenham Ave., PHILA., PA.

Miller Davis Engineers, Inc., 1029 Portage St., Kalamazoo, Mich., CA **$700,000**. Design and construct WAREHOUSE and OFFICE, PHILA., PA. International Paper Co., 220 E. 42 St., New York, N. Y.

J. **Franklin Moss & Co.**, 4 Old Lancaster Rd., Merion, Pa., Separate Contracts., **$500,000**. RESIDENTIAL DEVELOPMENT, Deepdale St., STRAFFORD, PA.

Gaylord Homes, 12 Bennington Rd., Haverford, Pa. Separate Contracts. **$500,000**. RESIDENTIAL DEVELOPMENT, Willow Crest Rd., etc., VILLANOVA, PA.

Wallace & McClain, 69 and Walnut Sts., Upper Darby, Pa. Separate Contracts. **$500,000**. RESIDENTIAL DEVELOPMENT, Colwell Rd., WOODLYN, PA. Erlinge Wenge, McClatchy Bldg., Upper Darby, Pa., archt.

J. **Franklin Moss & Co.**, 4 Old Lancaster Rd., Merion, Pa. Separate Contracts. **$500,000**. RESIDENTIAL DEVELOPMENT, Ashton St., WYNNEWOOD, PA.

▲ **Standard Constr. Co.**, 1010 Vermont Ave. N.W., Wash., D. C., CA, **$2,500,000**. 14-story OFFICE, Connecticut Ave. and K St. N.W., WASH., D. C. Charles Kaplan & A. Bennett, 1010 Vermont Ave. N.W., Wash., D. C. Corning & Moore, 1726 M St. N.W., Wash., D. C., archts. CD 2/5/53.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Va., Little Creek**—PARKING AREAS—B.A. 4/13—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk zone 11, resurf., imprv. parking areas at U. S. Naval Amphibious Base, NOY 82847, Spec. 42704. Plans deposit $10.

† **Va., Norfolk**—RADAR SET—B.A. 4/13—P. Wks. Office Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, installing radar set (weather) at U. S. Naval Air Station, NOY 81532, Spec. 40521. Plans deposit $10.

† **Kentucky and Tennessee**—B.A. 4/21—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., approx. 29,000 lin. ft. bank protection work on Mississippi River between Wickliffe, Ky. (Mile 962 AHP) and Ensley, Tenn. (Mile 720 AHP), incl. 1,800,000 cu. yd. grading, 40,000 tons gravel blanket, 95,000 squares articulated concrete mattress, 4,000 squares articulated concrete connecting mattress, 95,000 tons riprap paving, 100,000 lin. ft. grout joint filling at 3,000 lin. ft. below Toneys, Towhead, Tenn. Mile 884L AHP, 4,000 lin. ft. Merriwether Bend, Tenn., Mile 876L AHP, 10,000 lin. ft. Hathaway, Tenn. Mile 857L AHP, 8,000 lin. ft. Keyes Point, Tenn. Mile 796L AHP, 4,000 lin. ft. Ensley, Tenn. Mile 720L AHP, CIVENG-40-041-54-103.

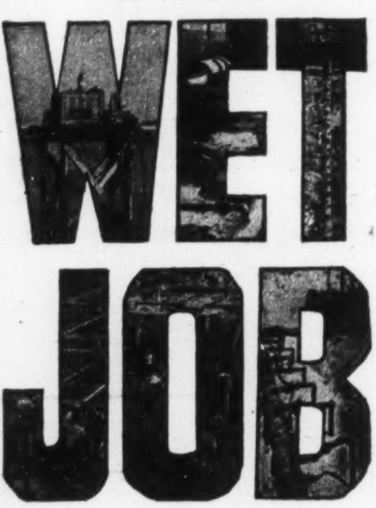
† **La., Shreveport**—HANGAR—B.A. 4/22—U. S. Eng., hangar, mezzanines, Barksdale Air Force Base, $100,-300 Broadway, Little Rock, Ark., AC Maintenance 000-$500,000.

† **La., Alexandria**—STORAGE IGLOOS—B.A. 4/23—U. S. Eng., 300 Broadway, Little Rock, Ark., storage igloos, Alexandria Air Force Base, $100,000-$500,000

† **La., Shreveport**—PUMP STATION—B.A. 5/6—U. S. Eng., 300 Broadway, Little Rock, Ark., pump station and reservoir, Barksdale Air Force Base, $100,000-$500,000.

† **La., Shreveport**—TRAINING BLDG.—B.A. 5/12—U. S. Eng., 300 Broadway, Little Rock, Ark., train-

IF IT'S A



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ing bldg., Barksdale Air Force Base, $100,000-$500,000.

† **La., Alexandria**—GUARDHOUSE—B.A. 5/17—U. S. Eng., 300 Broadway, Little Rock, Ark., guardhouse, Alexandria Air Force Base, under $100,000.

† **La., Alexandria**—CHAPEL—B.A. 6/10—U. S. Eng., 300 Broadway, Little Rock, Ark., chapel, Alexandria Air Force Base, $100,000-$500,000.

▲† **La., Shreveport**—APRON AND TAXIWAY PAVING—B.A. 6/10—U. S. Eng., 300 Broadway, Little Rock, Ark., apron and taxiway paving, Barksdale Air Force Base, $3,000,000-$5,000,000.

† **La., Alexandria**—AC & W SITE—B.A. 6/24—U. S. Eng., 300 Broadway, Little Rock, Ark., AC & W site M 125, Alexandria Air Force Base, $100,000-$500,000.

BIDS ASKED—BUILDINGS

† **Va., Quantico**—CLUB HOUSE—B.A. 4/14—P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. constr. golf club house, Marine Corps Schools, NOY 81504. Plans deposit $30.

S. C., Columbia—OFFICE—B.A. 4/15—Federal Savings & Loan Assoc., c/o Lafaye, Fair, Lafaye & Assoc., archts., 1226 Sumter St., 10 story 44,000 sq. ft. office. Plans deposit $50.

SOON LETS CONTRACT—BUILDINGS

Ky., Louisville—PLANT CENTER—Southern Bell Telephone & Telegraph Co., 521 W. Chestnut St., soon lets contract, rein.-con., brick, concrete block South Plant Center, Walter Wagner & Joseph Potts, Fincastle Bldg., archts. E. R. Ronald & Assoc., 554 S. Third St., engrs., CD 4/28/52, under Commercial Buildings.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Lang Constr. Co.**, 21 S. King St., Hampton, Va., LB **$1,274,000.** steam plant, Naval Amphibious Base, NOY 77141, LITTLE CREEK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Mar. 23. CD 3/19.

City, Smithfield, N. C. Owner Builds. **$75,000.** water treatment plant addn., SMITHFIELD, N. C.

▲ **MISSISSIPPI**—State Hy. Dpt., T. C. Robbins, dir., Jackson,

R. B. Tyler Co., 1446 Levering St., Louisville, Ky. CA **$790,881,** est. $838,000. incidental grading, drainage, alternate types of pavement. base course 13.554 mi. U. S. Hy. No. 90 between Ocean Springs and Gautier, FGI 003-1 (6) Contr. II, and F.I. I-003-1 (11) Jackson Co.;

T. L. James & Co., Inc., Ruston, La. CA **$577,763**, est. $590,000. incidental grading, drainage, alt. types pavement base course 10.914 mi. U. S. Hy. No. 90 between Pascagoula and Miss.-Ala. line, Hy. Proj. FI 003-1 (13), Jackson Co.;

Pigford Bros. Constr. Co., Hy. 11 S, Meridian, Miss. CA **$540,120,** est. $650,000. grading, drainage, culverts, bridges (incl. overpass bridge) 3.82 mi. U. S. Hy. No. 80 in and near Vicksburg, F 004-1 (12), FI-UI-I 004-1 (13) and UGI 004-1 (14), Warren Co.;

Dickerson & Bowen, Brookhaven, Miss. CA **$180,845**, est. $172,000. modified sand asph. surf. course 11.459 mi. U. S. Hy. No. 51 between Brookhaven and Wesson, I-001-1 (2), Lincoln and Copiah Counties. Grand total $2,089,609. Bids Mar. 23. CD 3/15 and 3/11.

† **Harrison Constr. Co.,** Maryville, Tenn. LB **$81,050.** interior drainage system, at flood protection Proj. at Pineville, KENTUCKY. U. S. Eng., P. O. Box 1070, 303 U. S. Court House, Seventh Ave. and Broadway, Nashville, Tenn. CD 10/30/52.

† **W. A. Catlett Constr. Co.,** 3601 Chapman Hy. S. W., Knoxville, Tenn., LB **$87,875.** aircraft and troop supply warehouse, McGhee-Tyson Air Force Base, KNOXVILLE, TENN. U. S. Eng., 303 Federal Office Bldg., Nashville 1, Tenn. Bids Mar 10. CD 2/17.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Frank H. Connor & Blythe Bros.**, P.O. Box 9001, Brambleton Station, Norfolk, Va., CA **$1,183,681,** Deep Creek HIGH SCHOOL, Deep Creek, NORFOLK, VA. Norfolk Co. School Bd., 148 Granby St., Norfolk, Va. Bids Mar. 19. CD 3/25, under LB.

James Stewart Co., Inc., 228 N. LaSalle St., Chicago, Ill. CA Est. **$600,000.** 20 rein.-con. double GRAIN SILOS, LOUISVILLE, KY. Early & Daniel Elevator Co., 1400 Gallagher St., Louisville, Ky.

Al J. Schneider Co., 3720 Seventh Street Rd., Louisville, Ky. LB **$329,500.** general contract fiscal COURT BLDG addn., LOUISVILLE, KY. Jefferson County Fiscal Court, Louisville, Ky. Bids Mar. 24. CD 3/8.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Ind., Terre Haute—FACILITIES—B.A. 4/20—H.Q. Indiana National Guard, State House, Indianapolis, facilities for 113th Fighter Bomber Squadron, 122 Fighter Bomber Wing, Indiana Air National Guard, Hartman Field. Everett I. Brown Co., 601 Circle Tower Bldg., Indianapolis, archt.-engr. CD 2/15.

† **Illinois, Arkansas, and Tennessee**—B.A. 4/22—U. S. Eng., P.O. Box 97, Memphis 1, Tenn., repairs to concrete, asphalt, riprap and other types of revetment paving on banks of Ohio and Mississippi Rivers, between Below Cache River, Illinois (Mile 969 AHP), and Henrico, Arkansas (Mile 600 AHP). Parcel I extends from Below Cache River, Illinois (Mile 969 AHP) to Fulton, Tennessee (Mile 780 AHP). Parcel II extends from Memphis, Tennessee (Mile 732 AHP) to Henrico, Arkansas (Mile 600 AHP), Serial No. CIVENG-40-041-54-104.

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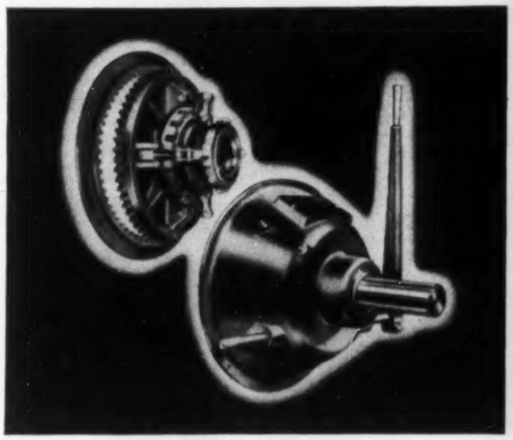

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Lamp is painted red, has three red lenses with white borders. Height to top of handle, 19 inches; height of body, 12 inches; width of body, 5-$\frac{1}{2}$ inches square; weight, 5 lb. Rugged, 22-ga. steel construction

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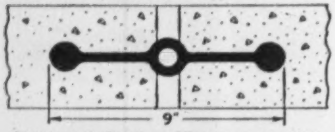
Rubber

WATERSTOP

FOR EXPANSION JOINTS

Center Bulb Type



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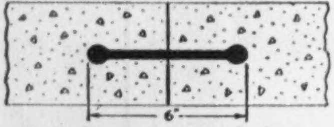

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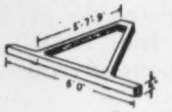

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HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., Columbus,

Frisinger Constr. Co., 16 E. Broad St., Columbus, O. CA **$987,222**, est. $1,034,000, Type T-35 and T-71, 8.437 mi. U. S. R. 224, Sects. (5.20-8.58), Ashland Co.;

Fischer Constr. Co., 4053 Clifton Ave., Cincinnati, O. CA **$742,680**, est. $1,009,800, Type T-71 and structures 2.702 mi. U. S. R. 42, Sect. 1.90, Greene Co.;

C. F. Replogle, Box 308, Circleville, O., CA **$1,285,819**, est. $1,497,000, Type T-71 9.185 mi. S. R. 16, Sects. (5.45-14.60), Licking Co.;

Harry Miller Excavating Co., Inc., Suffield, O., CA **$586,234**, est. $656,000, Type T-35, 5.131 mi. S. R. 14, Sect. 3.70, Portage Co. Grand total $3,601,955. Bids Mar. 16. CD 3/24, under LB.

OHIO—State Hy. Dpt., Columbus,

rejected bids Mar. 16, Type T-35 4.262 mi. U. S. R. 36, Sects. 0.00, 20.89, Harrison and Tuscarawas Counties, LB **$119,718**. CD 3/24, under LB.

Frank Messer & Sons, Inc., 4612 Paddock Rd., Cincinnati, O., CA **$174,425**, est. $262,000. constr. second deck on east side of Nippert Stadium, 2,500 seats, CINCINNATI, O. University of Cincinnati, Burnet Woods Park, Cincinnati, O. **Awarded Mar. 22. (Correction—owner).** CD 3/26, under CA.

Dravo Corp., Neville Island, Pittsburgh 5, Pa., CA, Est. **$400,000**, steel river dock to handle coal YANKEETOWN, IND. Yankeetown Dock Corp., Yankeetown, Ind.

▲ **ILLINOIS**—State Div. Hys., Centennial Bldg., Springfield,

Culberson Constr. Co., Pana, Ill., LB, **$202,421**, 1 bridge, widen 1 and substructure, steel for 1 bridge U. S. 51, Fayette Co.; LB **$70,563**, exten. 1 bridge and constr. 1 rein.-con. deck girder bridge both U. S. 66 Montgomery Co.;

McCann & Co., Inc., 812 Reisch Bldg., Springfield, Ill. LB, **$159,051**, substructure, structural steel for railroad viaduct U. S. 66, Glenarm, Sangamon Co.; LB **$193,205**, superstructure for 1 existing bridge, superstructure and approaches for 1 bridge, U. S. 51, Marion Co.;

Bethlehem Steel Co., 3 St., Bethlehem, Pa., LB, **$68,548** steel for railroad subway, F.A. 12, Clark Co.; LB, **$100,536**, structural steel for grade separation on Loomis St. and F.A. 131 (Congress St. Expressway) Chicago, Cook Co.; LB **$91,629**, structural steel for grade separation on Ashland Blvd. over F.A. 131 (Congress St. Expressway), Cook Co.;

Vincennes Steel Corp., Vincennes, Ind., LB, **$77,399** structural steel for 2 parallel hy. and 2 parallel railroad grade separations on F.A. 26, Kankakee Co.; LB **$64,308**, furnishing structural steel for 1 bridge Ill. 176, McHenry Co.;

G. H. Allen, 804 N. 5 St., Vincennes, Ind., LB, **$335,744** widening, reconstr. 1 bridge and paved approaches Ill. 15, Wayne Co.;

American Bridge Co., 208 S. La Salle St., Chicago, Ill., LB, **$83,300**, structural steel for 1 bridge, U. S. 51 Jackson Co.;

Arcole Midwest Corp., 3225 Main St., Evanston, Ill., LB **$277,453**, substructure, structural steel for 2 parallel hy. grade separation and 2 parallel railroad grade separations, F.A. 26, Kankakee Co.;

R. A. Cullinan & Sons, Inc., Tremont, Ill., LB, **$220,241** deck girder bridge, 3 rein.-con. slab bridges extens. U. S. 66, McLean Co.;

Ben Harrison & Sons, Marshall, Ill., LB, **$217,227** 1 bridge and 3 culverts, F.A. 12, Clark Co.;

Robt. H. King, 80 S. Washington St., Danville, Ill., LB, **$208,485**, substructure structural steel for railroad subway, F.A. 12, Clark Co.;

Thomas McQueen Co., 1313 S. Circle Ave., Forest Park, Ill., LB, **$633,421**, substructure, structural steel for grade separation on Ashland Blvd. F.A. 131, Congress St. Expressway, Cook Co.;

Paschen Contractors, Inc., 2739 Elston Ave., Chicago 47, Ill., LB, **$431,794**, substructure, structural steel for grade separations on Loomis St. and F.A. 131, Congress St. Expressway, Cook Co.;

E. T. Simonds Constr. Co., 202 W. Willow St., Carbondale, Ill. LB, **$600,022**, superstructure for 2 bridges, substructure and structural steel for 1 bridge, widening 2 bridges, U. S. 51, Jackson and Perry Counties;

States Improvement Co., 30 N. La Salle St., Chicago 2, Ill., LB, **$301,715**, substructure, structural steel for 1 bridge, and paved approaches, Ill. 176, McHenry Co.;

E. H .Swenson & Son, 14 Henderson Ave., Joliet, Ill., LB, **$322,063**, 4 concrete slab superstructures for existing bridges, box culvert exten., bit. paved approaches Ill. 47, Grundy Co.;

Burnell G. Watson, P.O. Box 033, Chatsworth, Ill., LB **$89,918**, substructure and structural steel for 2 bridges on U. S. 24, Iroquois Co. Bids Mar. 23. CD 3/12.

▲ **ILLINOIS**—State Div. Hys., Centennial Bldg., Springfield,

I. D. Lain Co., 1901 E. Adams St., Springfield, Ill., LB, **$607,579**, c. conc. 5.24 mi. U.S. 66, McLean Co.; LB, **$769,000**, c. conc. wid'n. 8.17 mi. and c. conc. 3.98 mi. U.S. 24, Iroquois Co.;

Peter Baker & Son Co., 1190 Convay Rd., Lake Forest, Ill., LB, **$73,984**, bit. 4.56 mi. FAS 1013, Lake Co.;

Barber Paving Co., 7 Dearborn St., Chicago 3, Ill., LB, **$89,702**, bit. resurf. 3.14 mi. U.S. 24, Iroquois Co.;

Robert A. Black, Inc., 13912 Halsted St., Riverdale, Chicago, Ill., LB, **$843,000**, c. conc. wid'n. 19.57 mi. c. conc. 3.57 mi. U.S. 51, Lee and Ogle Counties;

Bridges Paving Co., 1411 Central Industrial Drive, St. Louis 10, Mo., LB, **$383,196**, bit. resurf. 18.46 mi. U.S. 51, Fayette Co.;

Chas. Ind. Point Ave. R.R. No. 1, Rockford, Ill., LB, **$742,527**, c. conc. 1.12 mi., c. conc. wid'n. 1.64 mi. bit. resurf. 2.78 mi. Ill. 2, Winnebago Co.;

R. A. Cullinan & Son, Inc., Tremont, Ill., LB, **$68,579** bit. 4.04 mi. F.A.S. 368, Marshall Co.;

Chas. G. Gilmore Asphalt Products, Inc., Anna, Ill., LB, **$106,220**, bit. 3.44 mi. U.S. 51, Jackson Co.;

S. J. Groves & Sons Co., 1104 W. Reynolds St., Springfield, Ill., LB, **$2,885,000**. c. conc. 22.84 mi., 1 bridge F.A. 163, Pope and Saline Counties;

D. M. Lake Constr. Co., 123 N. Morgan St., Shelbyville, Ill., LB, **$274,522**, widening shoulders 13.4 mi. Ill. No. 1, Clark Co.;

O'Connor Constr. Co., 320 Reisch Bldg., Springfield, Ill., LB, **$881,301** c. conc. 6.88 mi. U.S. 66, Sangamon and Montgomery Counties;

J. C. O'Connor & Sons, Inc., 2104 Miner St., Fort Wayne 6, Ind., LB, **$1,037,823**, 3.48 mi. and c conc. wid'n. 13.68 mi. U.S. 51, Fayette Co.;

Powers-Thompson Constr. Co., 27 S. Chicago St., Joliet, Ill., LB, **$550,268**, c. conc. and superstructure for 1 bridge 1.7 mi. Ill. 4 A, Will Co.;

Regenhardt Constr. Co., Cape Girardeau, Mo., LB, **$850,048**. c. conc. 3.18 mi. and 3.88 mi. U.S. 51 and 0.52 mi. on Ill. 13, Jackson Co.;

Rockford Black Top Constr. Co., Rockford, Ill., LB, **$395,000**, bit. resurf. 23.28 mi. U.S. 51, Ogle and Lee Counties;

Sankey Bros., Inc., 402 Illinois Bldg., Springfield, Ill., LB, **$126,792**, bit. resurf. 3.12 mi. U.S. 66, Sangamon Co. Bids Mar. 23. CD 3/12.

Wood Electrical Constr. Co., Inc., 2326 W. Ogden Blvd., Chicago 8, Ill., LB, **$69,225**, furnishing, installing traffic control signals at 8 intersections, Cook Co., ILLINOIS State Div. Hys., Springfield, Ill. Bids Mar. 23. CD 3/12.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hillman & Brettschneider**, Beechmeadow Lane, Cincinnati, O. Owner Builds. **$1,850,000**. 110 1½-story brick HOMES, Tuxworth and Kellywood Aves., CINCINNATI, O. Munlist & Frolicher, Trac. Bldg., Cincinnati, O., engrs. Awarded Mar. 17.

▲ **Wood Realty Co.**, Carew Tower, Cincinnati, O., Owner Builds. **$3,000,000**. 150 one-family bsmnt., brick HOMES on new street off Hamilton Ave., CINCINNATI, O. Ayers & Graf, 527 Linton St., Cincinnati, O., engrs. Awarded Mar. 25.

Universal Realty & Investment Corp., 150 E. Broad St., Columbus, O. Owner Builds. **$800.000**. James Road SERVICE CENTER, a commercial development, COLUMBUS. O. C. Melvin Frank, 43 W. Long St., Columbus, O., archt.

R. G. Johnson Co., Washington, Pa., CA **$335,000**. underground STORAGE FACILITIES at Sohio Lima Refinery, LIMA, O. Standard Oil Co. of Ohio, Midland Bldg., Cleveland, O.

▲ **Construction Division, E. I. duPont de Nemours & Co., Inc.**, duPont Bldg., Wilmington 98, Del., CA, **$20,000,000**. cellophane PLANT, COVINGTON, IND. Olin Industries, Inc., East Alton, Ill. CD 5/28/52.

▲ **H & H Constr. Co.**, 319 N. Pennsylvania St., Indianapolis 5, Ind. Owner Builds, **$500,000**, group of 40 HOMES in third addn. to Creekwood Homes Addn,; **$500,000** new SHOPPING CENTER in Creekwood Addn., INDIANAPOLIS, IND.

▲ **R. K. Yeager**, 890 E. Banta Road, Indianapolis, Ind., Owner Builds, **$1,000,000**, HOMES in South Down addition at Banta Rd. and Shelby St., INDIANAPOLIS, IND.

George Scantland Builders, 1231 Abington Pike, Richmond, Ind., Owner Builds, **$300,000**, HOMES, RICHMOND, IND.

▲ **Sumner S. Sollitt Co.**, 307 N. Michigan Ave., Chicago, Ill., CA, **$5,370,000**, Gov. Henry Horner HOMES, incl. four apartments, consisting of 595 units, Lake St. and Ashland Ave., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago. Ill. Bids Feb. 23, awarded Mar. 22. CD 3/3, under LB.

A. L. Jackson Co.. 161 E. Erie St., Chicago 11, Ill., CA **$500,000**, underground STORAGE BLDG., Sheridan Rd. and Hinman Sts., EVANSTON, ILL. Northwestern University, 619 Clark St., Evanston, Ill. Holabird, Root & Burgee, 180 N. Wabash Ave., Chicago 1, Ill., archts. Awarded **Mar. 25**.

F. H. Martin Constr. Co., 955 E. Jefferson St., Detroit, Mich. CA Est. **$825,000**. 1 story, brick, masonry PLANT addn., East Eight Mile Rd., DETROIT, MICH. Carboloy Co., 11177 E. Eight Mile Rd., Detroit, Mich. CD 1/14.

R. Kasmussen & Sons, Oshkosh, Wis., LB, **$364,992**, general contract, GRADE SCHOOL, HARTFORD, WIS. Bd. Educ., Hartford, Wis. Bids Mar. 17. CD 2/18.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Ark., Jacksonville**—APRON GRID DUCT SYSTEM—B.A. 4/15—U. S. Eng., 300 Broadway, Little Rock, apron grid duct system (electrical design) Little Rock Air Force Base, $500,000-$1,000,000. CD 12/17/52.

† **Tex., Marshall**—AIR and STEAM DISTR.—B.A. 4/15—U. S. Eng., Box 61, Tulsa 2, Okla., air and steam distr. sys., Plant No. 3, Longhorn Ordnance Works, Inv. No. ENG-34-066-54-59. $75,000-$200,000.

† **N. D., Fargo**—FACILITIES—B.A. 4/21—U. S. Eng., 1709 Jackson St., Omaha, Neb., Air National Guard Facilities Hector Field, Inv. 25-066-54-70. CD 3/25.

† **Ark., Jacksonville**—STORM DRAINAGE FACILITIES—B.A. 4/22—U. S. Eng., 300 Broadway, Little Rock, storm drainage facilities, Little Rock Air Force Base. CD 12/17/52.

† **Ark., Jacksonville**—ROADS—B.A. 4/22—U. S. Eng., 300 Broadway, Little Rock, Ark., roads approx.

(Continued on page 116)

You'll have less infiltration . . .

reduce treatment costs . . .

conserve plant capacity . . .

Total infiltration in an all-Transite sewer system (over 5 miles of pipe) was so little the trickle had to be measured through a 3-in. pipe inserted in the Parshall flume!

—Because of this tight joint used with Transite® Sewer Pipe

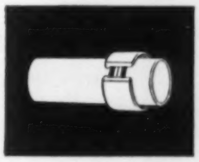
The reduction of ground-water infiltration brought about by the Transite Joint—now standard on all sizes of Transite Sewer Pipe—can lead to a number of cost-saving results.

For example, on one recently installed Transite System using 28,540 feet of Transite Sewer Pipe, in diameters of 6 through 18 inches, the infiltration per inch of diameter, per hour, per mile of pipe came to a mere 0.85 gal. This low infiltration (including that from manholes and connections to house sewers) was achieved despite the fact that a considerable portion of this installation was below the prevailing ground water table. (For specification purposes, an infiltration allowance of 10 gallons per inch of diameter, per hour, per mile of pipe may be used with Transite Sewer Pipe.)

Obviously, such minimum ground-water infiltration helps reduce the load on treatment plants, cuts down on treatment costs, and conserves plant capacity for future expansion needs. This reduced infiltration plus Transite's high flow capacity (Manning's N-.010) often permits the use of smaller diameter pipe for new installations.

For further information on how this Transite Joint, used with corrosion resistant asbestos-cement Transite Pipe can help reduce your sewage costs, write Johns-Manville, Box 60, New York 16, N. Y. Ask for folder TR-103A.

Why this dependable joint cuts your sewage costs



Two rubber rings and Transite Sleeve (cut away) can be assembled quickly over Transite Pipe ends to make an effectively tight joint. These flexible joints effectively absorb vibration, help compensate for soil movements.

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JOHNS-MANVILLE JM PRODUCTS

Johns-Manville TRANSITE SEWER PIPE

(Continued from page 114)

$140,000 sq. yd., Little Rock Air Force Base, $100,000-$150,000. CD 12/17/52.

† **Ark., Jacksonville**—RAILROAD SPUR—B.A. 4/22—U. S. Eng., 300 Broadway, Little Rock, railroad spur, Little Rock Air Force Base, $100,000-$500,000. CD 12/17/52.

† **Neb., Lincoln**—WASH RACK—B.A. 4/22—U. S. Eng., 1709 Jackson St., Omaha, wash rack, Lincoln Air Force Base, Inv. 25-066-54-65. CD 3/24.

† **Arkansas**—B.A. 4/27—U.S. Eng., 300 Broadway, Little Rock, drilling two water supply wells, Norfolk Reservoir Area, under $100,000.

† **Ark., Jacksonville**—AIRFIELD LIGHTING—B.A. 4/30—U. S. Eng., 300 Broadway, Little Rock, airfield lighting, Little Rock Air Force Base, $500,000-$1,000,000. CD 12/17/52.

▲† **Ark., Jacksonville**—STORAGE IGLOOS, etc.—B.A. 5/5—U. S. Eng., 300 Broadway Little Rock, two ammunition storage igloos, under $100,000; AM dormitory and mess, $1,000,000-$3,000,000, Little Rock Air Force Base. CD 12/17/52.

▲† **Ark., Jacksonville**—HYDRANTS, etc.—B.A. 5/6—U. S. Eng., 300 Broadway, Little Rock, aircraft refuel hydrants and aviation gasoline and jet fuel storage $1,000,000-$3,000,000, communications bldg. under $100,000, Little Rock Air Force Base. CD 12/17/52.

▲† **Ark., Jacksonville**—APRON GRID DUCT ELECTRICAL SYSTEM, etc.—B.A. 5/7—U. S. Eng., 300 Broadway, Little Rock, apron grid duct electrical system (primary only) and electrical supply, $100,000-$500,000; warehouse, $500,000-$1,000,000; diesel fuel, automotive gasoline and luboil storage, under $100,000, Little Rock Air Force Base. CD 12/17/52.

† **Neb., Fort Crook**—GRADING, PAVING—B.A. On Or About 5/18—U. S. Eng., 1709 Jackson St., Omaha, Neb. airfield grading and paving, Offutt Air Force Base. Inv. No. ENG-25-066-54-60. Plans deposit $50. CD 4/29/52.

▲† **Ark., Jacksonville**—APRON, etc.—B.A. 5/26—U. S. Eng., 300 Broadway, Little Rock, apron, paving $3,000,000-$5,000,000; crash and structural station, $100,000-$500,000, Little Rock Air Force Base. CD 12/17/52.

▲† **Ark., Jacksonville**—B.A. 6/3—DORMITORIES, etc. U. S. Eng., 300 Broadway, Little Rock, AM dormitories, Little Rock Air Force Base, $1,000,000-$3,000,000.

† **Ark., Jacksonville**—ENGINE BUILDUP BUILDING—B.A. 6/10—U. S. Eng., 300 Broadway, Little Rock, engine buildup building, Little Rock Air Force Base, $100,000-$500,000. CD 12/17/52.

BIDS ASKED—BUILDINGS

Kan., Wichita—MATERIALS—B.A. 4/15—Boeing Airplane Co., Plant No. II, Personnel Bldg., site preparation and foundations for materials bldg., Contr. W33-039-AC-21378 AMC Proj. No. 28B-32, Government Aircraft Assembly Plant No. 13. Plans deposit $25. Wilson & Co., 223 N. Santa Fe St., Salina, engrs.

† **Ia., Des Moines**—BUILDING RESTORATION—B.A. 4/22—Ninth Naval District, Great Lakes Naval Training Station, Great Lakes, Ill., building restoration, paving, utilities, at Fort Des Moines, Spec. 40743.

Minn., Annandale—SCHOOL—B.A. 4/29—Bd. Educ., R. Rousseau, clk., school addn. $500,000. Plans deposit $30, H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt. CD 10/13.

Minn., Austin—HOSPITAL—B.A 4/30—St. Olaf Hospital, C. W. Hildreth, administrator, Austin, 3 story, hospital addn. $850,000, Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 1/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Tecon Corporation**, 1201 Main St., Dallas, Tex. LB, **$4,159,384,** paving apron, runways, taxiways, Little Rock Air Force Base, JACKSONVILLE, ARK. U. S. Eng., Gay Bldg., Little Rock, Ark. Bids Mar. 18. (**Correction**—location of project). CD 3/23, under LB, Fla., Jacksonville.

† **Wm. D. Jeffrey Constr. Co. Corp.,** 4201 Towson St., Fort Smith, Ark., LB, **$313,225,** grading, drainage Little Rock Air Force Base, JACKSONVILLE, ARK. U. S. Eng., Gay Bldg., Little Rock, Ark. Bids Mar. 23. CD 3/4.

L. O. Brayton & Co., Dyersburg, Tenn., LB **$547,994,** est. $600,000. 87.4 mi. electric transmission line, Proj. Ark 32E Benton, Craig Co., OKLAHOMA. K. A. M. O. Co-operative, Vinita, Okla. Bids Aug. 25. CD 8/19.

† **Dean Skinner,** Box 4057, Austin, Tex., LB **$43,118,** turfing levee slopes, Dallas Floodway, Trinity River and Tributaries, Inv. No. CIVENG-41-443-54-29, TEXAS. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Mar. 18. CD 3/11.

A. F. Pike, Box 5202, Houston, Tex., CA **$139,185,** est. $200,000. site grading, Phase 1, grubbing, grading, excavating, etc., HOUSTON, TEX. Gulfgate, c/o Theodore W. Berenson, 805 Bankers Mortgage Bldg., Houston, Tex. Bids Mar. 11. CD 3/3.

Lembke & Clough, 1719 N. 5 St., Albuquerque, N. M. CA **$73,118,** est. $68,500, 22,927 lin. ft. 24 in. concrete pipe, fittings, etc. for water supply mains and appurtenances, LUBBOCK, TEX. City, Lubbock, Tex. Bids Dec. 10, awarded Mar. 18. CD 12/2.

W. J. Hardy, Box 428, Marshall, Tex., LB **$43,336.** Caddo Lake Water Pump Station, MARSHALL, TEX. City Marshall, Tex. Bids Mar. 18. CD 3/11.

Schmidt Constr. Co., P.O. Box 66, Grand Junction, Colo., CA, **$65,170,** est. $102,430, sanitary sewers, appurtenances Sanitary Sewer Dist. No. 321, DENVER, COLO. City and Denver Co., City and County Bldg., Denver, Colo. Bids Mar. 17, awarded Mar. 18.

BUILDINGS

LOW BIDS AND CONTRACTS

Barbour & Short, Norman, Okla., LB **$568,990,** municipal HOSPITAL addn., NORMAN, OKLA. City, Norman, Okla., Paul Harris, Lawton, Okla., archt. CD 9/3/52.

Harmon Constr. Co., 100 S. Indiana St., Oklahoma City 3, Okla., CA Approx. **$600,000.** SHOPS, PARKING BLDG., 321 W. Grand Ave., OKLAHOMA CITY, OKLA. Carport, Inc., 1203 Colcord St., Oklahoma City, Okla., Bailey & Bogalis, Colcord Bldg., Oklahoma City, Okla., archts. Awarded Mar. 16.

Cain, Brogdon & Cain, Majestic Bldg., Fort Worth, Tex. CA **$309,118,** masonry RECTORY and sisters RESIDENCE, St. Rita's School, FORT WORTH, TEX. Roman Catholic Diocese of Dallas, 500 Fidelity Union Bldg., Dallas, Tex. Boese & Harkrider, 1005 T & P Bldg., Fort Worth, Tex., archts. Gorman & Van Gorder, N. P. Anderson Bldg., and Leonard E. Kanto, N. P. Anderson Bldg., Fort Worth, Tex., engrs.

▲ **Corrigan Constr. Co.,** Mercantile Bank Bldg., Dallas, Tex., CA Approx. **$2,500,000.** SHOPPING CENTER, N. Shepherd Dr., in area Sears Roebuck & Co. store, HOUSTON, TEX. Leo F. Corrigan, Mercantile Bank Bldg., Houston, Tex. CD 2/19.

Dumas Realty Co., 2432 W. Holcombe St., Houston, Tex. Own Forces. **$325,000.** 24 DWELLINGS, HOUSTON, TEX. CD 7/2.

Martin B. Semands, Box 979, Conroe, Tex., LB **$389,000.** HIGH SCHOOL Proj., near HOUSTON, TEX. East & Mount Houston Independent School Dist., c/o East Houston Rd., Houston, Tex. Matkin & Fitch, 4101 San Jacinto St., Houston, Tex., engrs.-archts. Bids Mar. 22.

Harrison Co., Road and Bridge Dpt., Marshall, Tex. Owner Builds. **$90,000.** WAREHOUSE reconstr., MARSHALL, TEX.

† **Shelton Constr. Co.,** 1901 N. Harwood St., Dallas, Tex. LB **$159,129,** est. $250,000. constr. addnl FACILITIES at Plant No. 2, Longhorn Ordnance Works, Inv. No. ENG-34-066-54-52, MARSHALL, TEX. U. S. Eng., Box 61, Tulsa, Okla. Bids Mar. 11.

Wonder Center Shopping Village, 3200 Blk. West Ave., San Antonio, Tex. Owner Builds. **$325,000.** SHOPPING CENTER, SAN ANTONIO, TEX.

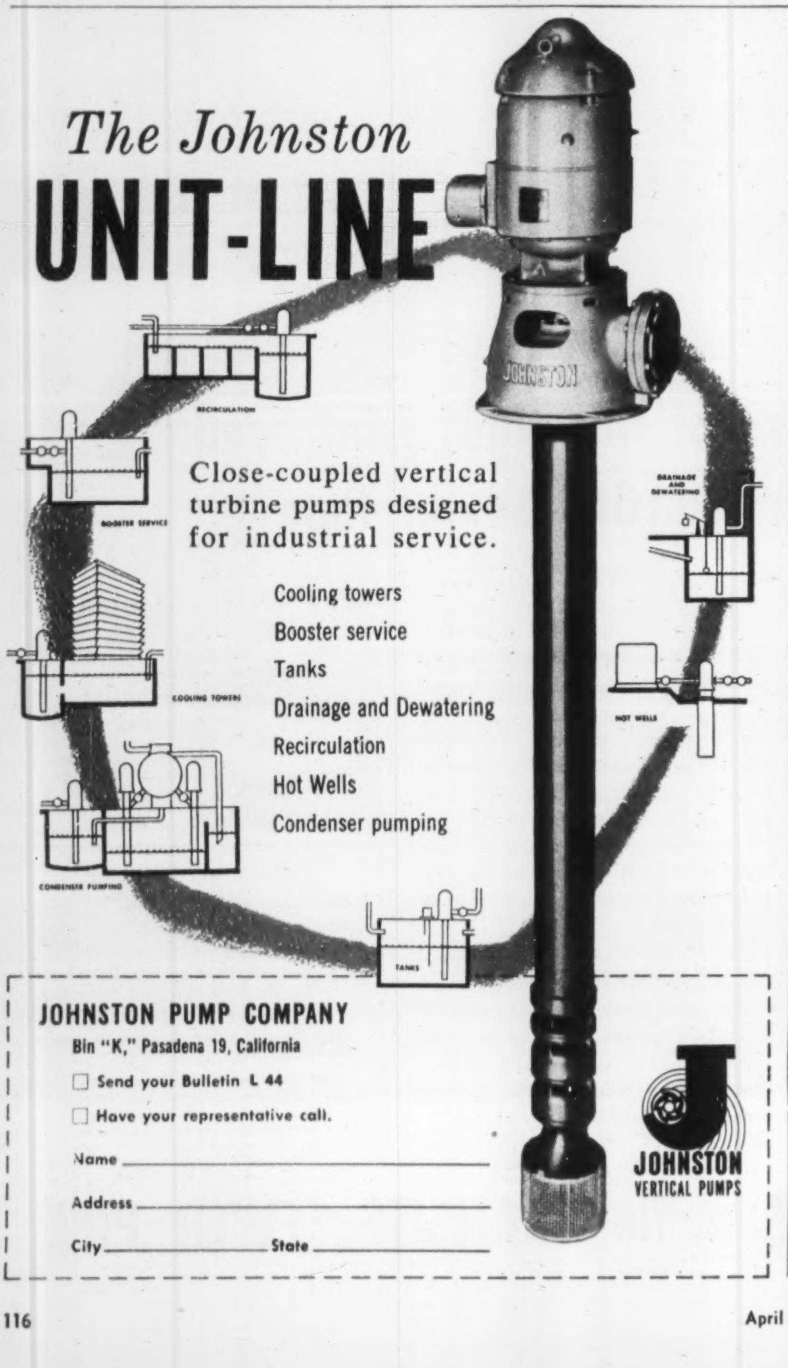
Alexander & Kingbay, 4641 Hiawatha Ave., Minneapolis, Minn. Owner Builds. **$500,000.** 42 HOMES, BUTTE, MONT.

Denver Builders, Inc., 1429 Ulster St., Denver, Colo., CA **$500,000.** 1 story, 55x93 ft., masonry main PLANT addn., DENVER, COLO. Lucerne Milk Co., 190 West Nevada Place, Denver, Colo. Ralph D. Peterson, 1707 Gilpin St., Denver, Colo., engr.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Oregon**—SUB-STATION—B.A. 4/16—Bonneville Power Admin., 827 N. E. Oregon St., Portland, constr.



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Burnt Woods Sub-station, Lincoln Co., Inv. 7284. Plans deposit $25.

Calif., Milpitas—B.A. 4/20—Santa Clara Sanitary District No. 8, City Hall, sewage treatment plant. Plans deposit $25. Mark Thomas & Co., 18 N. San Pedro St., San Jose, engrs.

† **Oregon**—B.A. 5/18—U. S. Eng., Pittock Block, Portland, two 4,500-h.p. station service hydraulic turbines and governors, The Dalles Dam, Wasco Co., CIVENG-35-026-54-112. CD 12/23.

BIDS ASKED—BUILDINGS

Idaho, Kellogg — SCHOOLS — B.A. 4/15 — School Bd., Kellogg, frame Pinehurst Elementary and Junior High School. $500,000; and Canyon elementary school addn. Culler & Gale, Realty Bldg., Spokane, Wash., archts. CD 10/7/53.

SOON LETS CONTRACT—BUILDINGS

▲ **Calif., Palmdale**—WAREHOUSE—North American Aviation, Inc., 5601 W. Imperial Hy., Inglewood, soon lets contract 500,000 sq. ft. warehouse at Palmdale Airport, $2,000,000. Daniel, Mann, Johnson & Mendenhall, 4201 Sunset Blvd., Los Angeles, archts. CD 3/4.

Wash., Spokane—SHOPPING CENTER—Western Realty & Holding Co., W 1017 Riverside Ave., soon lets contract first section, 1 story, 64,000 sq. ft. Northtown Shopping Center, $700,000. C. G. Tollefson, W 1017 Riverside Ave., archt. CD 10/19.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix,

W. J. Henson, Box 471, Prescott, Ariz., CA, **$267,781** grading, draining 3.9 mi. U. S. 70, Globe-Safford Hy., Graham Co.; CA, **$178,707**, 4½ mi. U. S. 70, Globe-Safford Hy., Graham Co. Bids Mar. 16, awarded Mar. 22.

† **Cherf Bros.-Sandkay Contractors and J. A. Jones Constr. Co.**, Box 938, Ephrata, Wash., LB, **$98,485**. est $91,623 Sch. A; LB **$76,984**, Sch. B, aircraft washrack, ENG-45-165-54-16, Larson Air Force Base, MOSES LAKE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Mar. 22. CD 2/25.

† **OREGON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland,

J. W. Briggs, Bend, Ore., CA **$162,489**, grading 3.6 mi. Cummins Creek Rd., Lane Co. Bids Mar. 23, awarded Mar. 23. CD 3/12.

† **Bethlehem Pacific Coast Steel Corp.**, 20 and Illinois Sts., San Francisco, Calif., CA **$829,236**, approx. 3,200 tons steel for electric transmission towers to be used in constr. of 110-mi. McNary-Maupin No. 2, 230 kv transmission line, OREGON. Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore.

▲† **A. Teichert & Son, Inc., and M. J. Bevanda**, Box 397, Baldwin Park, Calif., LB, **$3,088,946** constr. west embankment, outlet works, and relocation of Lincoln Ave. San Gabriel River Imprvt., CIVENG-04-353-54-29, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 25. CD 3/2.

Angelo Rossi Constr. Co., 2480 Ramona Blvd., Los Angeles, Calif., LB, **$105,522**, est. $102,926, sanitary sewers and facilities in Garden Grove Blvd., GARDEN GROVE, CALIF. Garden Grove Sanitary District, 11061 Garden Grove Blvd., Garden Grove, Calif. Bids March 17. CD 3/5.

Millie & Severson, 1485 Canal Ave., Long Beach, Calif., LB, **$163,448**, bulkhead and retaining wall along Bayshore Ave. and 54 Pl. and between 54 Pl. and Appian Way, LONG BEACH, CALIF. City, 205 W. Broadway, Long Beach Calif. Bids Mar. 19. CD 12/6/44.

Webb & White, 7220½ Melrose Ave., Los Angeles, Calif., LB, **$464,331**, est. $629,142, site clearance and excavation for court house, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids Mar. 19. CD 4/13/48, under Public Buildings.

† **Fredericksen & Kasler**, Box 176, Fontana, Calif. and **Mojave Corp.**, 12827 Imperial Hy., Norwalk, Conn., CA, **$778,972**, backfill mud mines, Edwards Air Force Base, ENG-04-353-54-58, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 18, awarded Mar. 19. CD 3/25, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **T. G. K. Constr. Co., Inc.**, 2750 W. McDowell Rd., Phoenix, Ariz., CA **$2,215,700**, est. $2,000,000. 1 story, 125,000 sq. ft., concrete block Senior HIGH SCHOOL, LAS VEGAS, NEV. Las Vegas High School Dist., 315 S. 7 St., Las Vegas, Nev. Bids Mar. 17, awarded Mar. 22. CD 3/24.

Lewis Constr. Co., 1711 Jackson St., Seattle, Wash., CA, **$669,715**, HOSPITAL, MOSES LAKE, WASH. Moses Lake Hospital District, Moses Lake, Wash. Bids Jan. 20. CD 1/27, under LB.

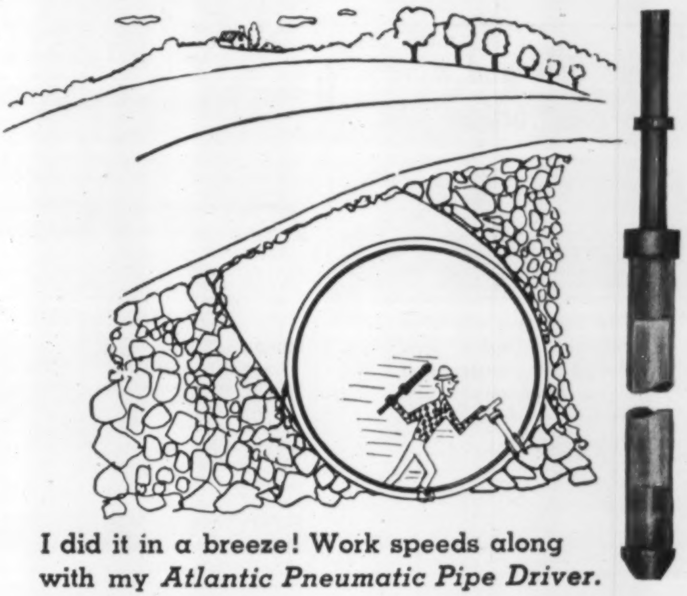
Commercial Contractors, Inc., 1185 Lancaster Dr., Salem, Ore., LB **$394,560**. 12-room HIGH SCHOOL and GYMNASIUM, BROOKINGS, ORE. Curry Co. School Dist. 17-C, Brookings, Ore. Bids Mar. 19. CD 3/2.

Brooks-Williams-Macco, 14409 S. Paramount Blvd., Paramount, Calif., CA, **$810,167**, est. $700,000. 2 story, 40,000 sq. ft., rein.-con. CITY HALL, BAKERSFIELD, CALIF. City, City Hall, Bakersfield, Calif. Bids Mar. 15, awarded Mar. 23. CD 3/23, under LB.

L. H. Hansen, 313 Palm Ave., Fresno, Calif., LB, **$510,726**, est. $500,000. Concrete, brick CHURCH, BAKERSFIELD, CALIF. First Christian Church, 1610 16 St., Bakersfield, Calif. Bids Mar. 19. CD 3/5.

▲ **Robert E. McKee, Inc.**, 4700 San Fernando Rd., West Los Angeles, Calif., LB, **$2,514,400**, 5 story, county HOSPITAL, BAKERSFIELD, CALIF. Bd. Supervs., Kern Co., Court House, Bakersfield, Calif. Bids Mar. 23. CD 3/2.

Contracting Engineers, 2310½ W. Vernon Ave., Los Angeles, Calif., CA, **$150,000**, tilt-up concrete 30,000



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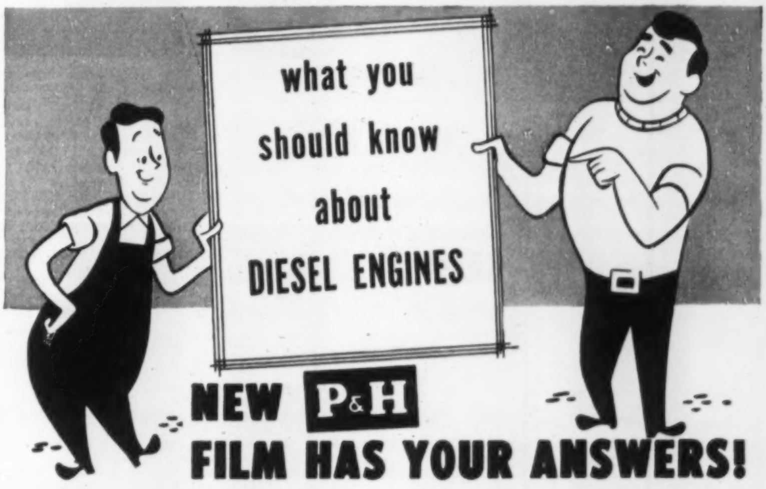

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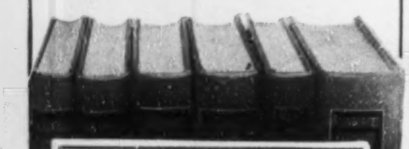

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Samuel Widre & Sons, Inc., 8154 Beverly Blvd., Los Angeles, Calif., LB, **$294,999**, LABORATORY, at Olive View Sanitorium, SAN FERNANDO, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids Mar. 19. CD 3/1.

CANADA

BIDS ASKED—BUILDINGS

Ont., St. Catherines—SCHOOL—B.A. 4/13—Lincoln-Welland High School Bd., St. Catherines, 200x308 ft. steel, concrete, brick high school, Church Rd. Grantham Twp. $700,000. Plans deposit $100. Macbeth & Williams, 104 Queen St., archts. CD 11/27.

BUILDINGS

LOW BIDS AND CONTRACTS

Finley W. McLachlan Ltd., 195 Fairbank Ave., Toronto, Ont., CA, **$90,000** PARTS STORAGE, Merton St. west of Mount Pleasant Rd., TORONTO, ONT. Hyland Motors Ltd., 2673 Yonge St., Toronto, Ont.

▲ **Ain & Zakuta Ltd.**, 6919 Wiseman Ave., Montreal, Que., Owner Builds. **$1,200,000**. five APARTMENTS, near 24 Ave. and Perras Blvd., Ville St. Michel, MONTREAL, QUE. S. **Gerson**, 1178 Phillips Square, **Montreal, Que., archt.**

ALASKA

BIDS ASKED—BUILDINGS

† **Alaska, St. George Island and St. Paul Island**—SCHOOL-WAREHOUSE—B.A. 4/30—U. S. Dpt. Interior, Fish & Wildlife Service, Federal Office Bldg., Seattle 4, Wash. constr. one 1 story, 60x120 ft. brick school on St. George Island and two 200,000 gal. rein.-con. water reservoirs and one 2 story, 50x217 ft., brick warehouse, on St. Paul Island, Inv. No. FW 6-699.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Burgess Constr. Co.**, Fairbanks, Alaska, LB **$78,873**, est. $57,886 constr. Navigational Aids FACILITIES, ENG-95-507-54-87, CAPE PRINCE OF WALES, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Mar. 18. CD 2/17.

Proposed Projects

WATER SUPPLY

Ill., De Kalb—City, City Hall, water main extens. $250,000. S. W. Kennetsch, 4 and Lincoln Sts. consult. engr.

▲ **Kan., Wichita**—City, City Hall, 66 in raw water line, **$8,000,000**, Black & Veatch, 4705 Broadway, Kansas City, Mo., consult. engrs. CD 11/11/52.

Mass., Concord—City, City Hall, water exten., Black Hill Sect., **$100,000**; water exten. River Rd. Sect., **$50,000**.

† **Tex., Dallas**—City, City Hall, Main and Harwood Sts., planning and developing water supply sources; water supply from Lake Texoma; water supply from Lake Lavon. **$10,000,000**. Forrest & Cotton, 802 Praetorian Bldg., consult. engrs. CD 11/21/51.

Tex., Timpson—Shelby Water Control & Imprvt. Dist., Precinct 4, Timpson, bond election Apr. 16, water reservoir **$550,000**. water mains, distr. lines, **$175,000**; water supply, **$150,000**. J. M. Lloyd & Assocs., Tyler, consult. engrs. CD 2/24.

▲ **Utah, Ogden**—Ogden City Corp., E. J. Allison, mgr., Municipal Bldg., purification plant below Pine View Dam. $1,000,000. CD 12/18/52.

▲ **Utah, Salt Lake City**—Salt Lake City Corp., City-County Bldg., Big Cotton Wood Filtration Plant. **$1,300,000**. CD 5/24/44.

Wash., Richland—City, City Hall, 6,000 ft. supply line from Wellsian Well field to Lee-Thayer line, **$100,000**. M. Nelson, city engr.

▲ **Wash., Seattle**—City, County—City Bldg., Seattle, Zone 4, 11 mi. 24 and 36 in. pipe line from Cedar River to Merider Island, **$1,400,000**. R. W. Morse, supt. of water.

Wyo., Evanston—City, City Hall, water sys. imprvs., incl. water treatment plant and renovation of reservoirs **$325,000**. G H Chapman, city engr. CD 8/24/51.

SEWERS, WASTE DISPOSAL

Ill., North Chicago—City, City Hall, sanitary relief sewers, **$600,000**. Alvord Burdick & Howson, 20 N. Wacker Dr., Chicago, Zone 6 consult. engrs.

Mass., Concord—City, Dpt. P. Wks., City Hall, sanitary sewers Heights Sect., Hospital Sect. **$100,000**. Camp, Dresser & McKee, 6 Beacon St., Boston, consult. engrs.

Mass., Marblehead—Town, Sewer Dpt., Spring St., sewers, various locations, **$100,000**, Haley & Ward, 73 Tremont St., Boston, consult. engrs.

Mich., Ann Arbor—City, Fred J. Looker, clk., **$176,000** bond election May 1, sewerage sys., East Ann Arbor. CD 11/13/44.

Mich., Bad Axe—City, sewage disposal plant, treatment facilities. **$350,000**. J. W. Shikles & Co., Reliance Bldg., Kansas City, Mo., consult. engrs. CD 2/3, under LB.

Mich., Pontiac—City, Ada R. Evans, clk., sanitary, storm and combined sewers parts of 22 streets, 1954 vrogram, **$565,000**, Lewis M. Wrenn, City Hall, city engr.

Mich., Three Rivers—City, **$500,000** bond election May 17, sewage treatment plant with treatment facilities. CD 4/15/46.

Minn., Wayzata—City, E. Wagner, mgr., sanitary sewerage sys. imprvs. **$200,000**, Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, consult. engrs.

Okla., Bethany—City, defeated bonds, storm sewers, **$398,000**. Hudgins, Thompson & Ball, 1100 W. Main St., Oklahoma City, consult. engrs. CD 1/13.

Tex., Bellaire—City, sewage plant imprvs. **$110,000**. Hilton & Coulson, 3821 Fannin St., Houston, consult. engrs. CD 12/16.

Tex., Farmers Branch—Webb Roberts, Farmers Branch, storm sewers, **$67,500**; sanitary sewerage sys. **$65,000**, 350-acre industrial tract.

Tex., Garland—City, addnl. sanitary sewerage sys. expansion **$125,000**. Homer A. Hunter, 3708 Abrams **Rd., Dallas, consult. engr.**

Tex., Houston—Babbitt Realty Co., 4201 Airline St., sanitary sewers, **$65,000**; storm sewers, **$65,000** Glenburnie Addn. on Dallas Hy. 75, inside city limits.

▲ **Utah., Ogden**—Central Weber Sewer Imprvt. Dist., Doren Boyce, pres., Ogden, laying trunk lines and at least two treatment plants. **$4,000,000**. Gerix & Mueller, 358 Harrisville St., Ogden, and Henningson, Durham & Richardson, 626 Standard Oil Bldg., Omaha, Neb., consult. engrs. CD 1/12/54.

Wash., Pasco—City, City Hall, sewage treatment plant addn., **$285,000**. Cornell, Howland, Hayes & Merryfield, Corvallis, Ore., consult. engrs. CD 10/21.

BRIDGES

† **Georgia**—U. S. Eng., P. O. Box 1169, Mobile 7, Ala. 2 bridges between Cumming and Gainesville, replacing 2 bridges in Buford Dam reservoir area, **$200,000**. Patchen & Zimmerman, 525 Telfare St., Augusta, consult. engrs.

Ill., Danville—Vermillion River Outlet Drainage District, bridge addn. and dredging, **$800,000**. Tracy A. Pitzen, Paxton, consult. engr.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,
Dare Co.—Proj. 1231, bridge over Croatan Sound. **$3,000,000**. T. B. Gunter, bridge engr. CD 11/17/49.

Tex., Dallas—Dallas Co., Court House, Trinity River **vehicle bridge, Graulyler and Hilline Rds. $200,000.**

STREETS AND ROADS

Calif., Los Gatos—City, City Hall, **$173,000** bond election Apr. 13, Saratoga Ave.-Charles St. Crosstown Highway.

Ill., Peoria—City, City Hall, surf. and widening Knoxville Ave. from Corrington Ave. to Columbia Terrace **$500,000**. CD 2/15/49.

▲ **Mich., Detroit**—City, Carl D. Warner, comr. Dpt. P. Wks., Guardian Bldg., 2 in. b. conc. surf. parts of 55 major streets, 66 residential streets, **$3,000,000**. George R. Thompson, city engr. CD 3/30/43.

Mich., Lansing—City, Millie M. Brown, clk., wid'n. Logan St. from Main to Olds Sts. and resurf. trunk hys. **$165,000**; constr. diagonal cutoffs St. Joseph St. and Main Sts. 2 cutoffs, **$255,000**, Collins Thornton, city engr.

▲ **Mich., Pontiac**—City, Ada R. Evans, clk., 5 street sections, **$340,000**, 2 in. blacktopping parts of 42 streets, **$204,165**; b. conc. proj. 12 streets, **$340,000**; curb, gutter, drainage, gravel projs. 52 sections, **$371,000**. Lewis M. Wrenn, City Hall, city engr.

Mich., Roseville—Village, Howard S. Cochran, clk., 2 mi. sidewalks, paving parts of 20 streets, 1954 program. **$250,000**.

▲ **OHIO**—Ohio Turnpike Comn., 139 E. Gay St., Columbus Zone 15,
North-South Turnpike from Cincinnati to Conneaut with spur to Columbus and Toledo. **$400,000,000**. Coverdale & Colpitts, archts., 120 Wall St., New York, N. Y. to make traffic and revenue study. J. E. Greiner Co., consult. engr. 1201 St. Paul St. Baltimore, Md., to make preliminary survey. CD 2/19.

O., Brooklyn—City, City Hall, 7619 Memphis St., concrete, paving 30,000 ft. roads, **$797,300**. C. W. Courtney Eng. Co., The Arcade, Cleveland, Zone 14, consult. engr.

O., Cleveland—Comrs. Cuyahoga Co. Court House, paving Harvard Rd. from Jennings Rd. to Harvard Rd. bridge, 28 ft. concrete pavement, plus 14 ft. lane for trucks up hill to bridge, **$408,000**. Albert S. Porter co. engr. CD 1/9/50.

▲ **OKLAHOMA**—Oklahoma Toll Road Auth., Capitol, Oklahoma City, has selected Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, N. Y. to make statistical and feasibility reports on three new turnpikes; De Leuw Cather & Co., 150 N. Wacker Dr., Chicago 6, Ill, will make cost estimates. Total cost **$150,000,000**. CD 1/8/53 and 1/29/54.

S. D., Rapid City—City, **$199,500** bond election Apr. 20, for street construction.

Tex., Fort Worth—City, c/o W. O. Jones, mgr., City Hall, permanent paving E. Berry St. **$208,000**.

(Continued on page 120)

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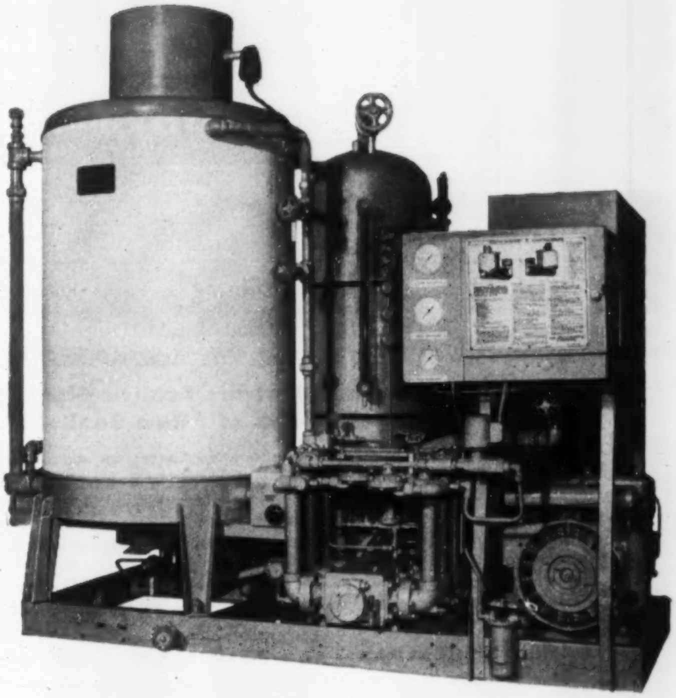

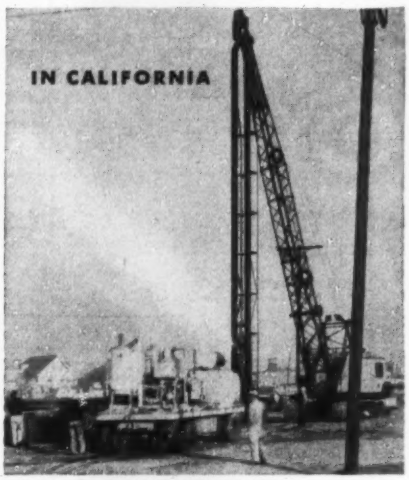

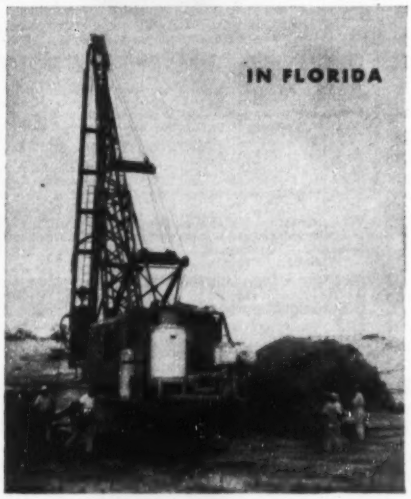

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(Continued from page 118)

C. M. Thelin, dir. of P. Wks.; Unit 1, exten. Seminary Dr. permanent type paving, **$75,000.** Scott, McDonald, Harrell, 3400-B Camp Bowie St., consult. engrs. CD 9/17/51.

Tex., Timpson—Shelby Water Control & Imprvt. Dist. 4, Timpson, bond election Apr. 16, roads, **$100,000.** J. M. Lloyd & Assocs., Tyler, consult. engr. CD 2/25.

Wash., Seattle—City, County—City Bldg., Seattle, Zone 4, grading, draining, surf. and sidewalks in Highland Park area, **$355,587;** paving streets in Seaview Park addn. **$81,580.** W. E. Parker, city engr.

▲ **Wis., Milwaukee**—City, City Hall, Milwaukee, c. conc. paving, etc.

NINTH WARD
N. 44 St. from W. Congress St. to W. Hampton Ave.;
N. 45 St. from W. Congress St. to W. Hampton Ave.;
N. 46 St. from W. Congress St. to W. Hampton Ave.;
N. 48 St. from W. Fairmount Ave. to W. Eggert Pl.;
W. Eggert Pl. from N. 47 to N. 50 Sts.;
W. Fairmount Ave. from N. 47 to N. 51 Sts.;
W. Glendale Ave. from N. Sherman Blvd. to N. 46 St.;
Alley between N. Long Island Dr., W. Neil Pl., W. Silver Spring Dr. and Drainage Easement;
FOURTEENTH WARD
S. 11 St. from point south of W. Cleveland Ave.;
S. 14 St. from point north of W. Dakota St. to N.W. R. R. ROW;
SEVENTEENTH WARD
S. 1 Place from W. Wilbur to W. Holt Aves.;
S. 2 St. from W. Howard to W. Tripoli Aves.;
S. 5 Place from W. Howard to W. Morgan Aves.;
W. Morgan Ave. from S. 1 Pl. to S. 3 St.;
E. Ohio Ave. from S. Griffin to S. Whitnall Aves.;
TWENTY-FOURTH WARD
S. 52 St., from W. Tesch to W. Norwich Aves.;
S. 53 St. from W. Tesch to Howard Aves.;
S. 54 St. from W. Tesch to W. Norwich Aves.;
W. Norwich Ave. from S. 51 to S. 55 Sts.;
W. Oklahoma Ave. (SS) from S. 60 St. to point west of S. 72 St.;
Pedestrian Way between S. 62 St. and S 65 St., W. Oklahoma Ave. to W. Manitoba St.;
Pedestrian Way (S. 66 St. exten.) from W. Oklahoma to W. Bennett Aves.;
W. Tesch Ave. from S. 52 to S. 54 Sts.;
W. Van Beck Ave. from S. 53 St. to point west of S. 53 St.;
alley between W. Arthur Ave. W., Pabst Ave., S. 34 St. and S. 35 St.;
alley between W. Euclid Ave. W., Oklahoma Ave., S. 49 St. and S. 51 St.;
alley between W. Forest Home Ave., W. Montana Ave., S. 34 St. and S. 35 St.;
TWENTY-SIXTH WARD
alley between W. Congress St., W. Fond du Lac Ave., W. Vance Place and N. 56 St.;
alley between W. Elmore Ave., W. Lisbon Ave., N. Tucker Place and N. 87 St.;
alley between W. Keefe Ave., W. Nash St., N. 81 St. and N. 82 St.;
alley between W. Keefe Ave., W. Townsend St., N. 78 St. and N. 79 St.;
alley between W. Melvina St., W. Vienna Ave., N. 80 St. and N. 81 St.;
TWENTY-SEVENTH WARD
E. Warnimont Ave. (SS) from S. Brust Ave. to point west of S. Brust Ave. **$2,500,000.** Lloyd D. Knapp, city engr.

EARTHWORK, WATERWAYS

Tex, San Antonio—San Antonio River Auth., c/o Col. W. B. Tuttle, chn., 201 N. St. Marys St., 5 small earthen flood control dams on Escondido Creek, Karnes City area, Karnes Co. **$150,000;** 5 earthen flood control dams on Calaveras Creek, east of here. **$150,000.**

AIRPORTS

Tex., Amarillo—LANDING STRIPS—City, City Hall, imprv. landing strips, constr. new runway, **$675,000.** CD 4/20/50.

▲ † **Va., Oceana**—HANGAR—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, aircraft maint. hangar addn. **$1,000,000.** Hayes, Seay, Mattern & Mattern, 163 W. Onley Rd., Norfolk, consult engrs. CD 11/24.

Wash., Seattle—PARKING LOT—Port of Seattle, Bell St. Terminal, Zone 1, addnl. parking lot at Seattle Tacoma International Airport, **$100,000.** G. T. Treadwell, ch. engr.

PUBLIC BUILDINGS

Calif., Fullerton—SCHOOL—Fullerton Elementary School Dist., Fullerton, **$750,000** bond election May 21, new school construction.

▲ **Calif., Palo Alto**—SCHOOLS—Palo Alto Unified School District, Palo Alto, **$5,000,000** bond election May 21, high school auditorium wing at Wilbur Junior High School and addnl. classrooms. CD 4/5/51.

Fla., Lakeland—HOSPITAL—City, City Hall, plans by Reynolds, Smith & Hills, 227 Park St., Jacksonville, Morrell Memorial Hospital addn. **$500,000.** CD 1/27/53.

Ill., Chester—COURT HOUSE—Randolph Co., c/o County Bd. Supervs., brick, concrete stone court house. **$750,000.**

▲ **Mass., Cambridge**—SCHOOL—City, School Dpt., 1700 Cambridge St., plans by M. A. Dyer Co., 24 School St., Boston, masonry Wyman Elementary School, Ellis, Sleeper, Ringe Ave., Yerxa Rd. and Haskell St., **$1,200,000.** CD 12/22/52.

Mich., St. Joseph—HOME—Bd. Supervs. Berrien Co., 1121 Milton St., plans by Hubert Van Dongan, Benton Harbor, brick, steel county home for aged, **$700,000.**

▲ **Minn., Austin**—CITY HALL, etc.—City and Mower Co., plans by Liebenberg & Kaplan, 51 South 13 St., Minneapolis, combined city hall and court house. **$1,000,000.** CD 11/3/49.

Miss., Tupelo—PLANT—City, plans by Robert B. McKnight, P.O. Box 5, Tupelo, plant for Daybrite Lighting, Inc. **$500,000.**

Mo., Potosi—SCHOOL—School Dist. R-III, Bd. Educ., voted **$625,000** bonds 27-room school, Bissman & Matthews, 1318 St. Louis Ave., Springfield, archts. CD 2/10.

▲ **Mont., Billings**—SCHOOLS—School Dist. No. 2, Junior High Bldg., vote on **$2,780,000** bond issue Mar. 19 not valid because only 36% of eligible voters balloted. CD 3/4.

▲ **N. J. Manville**—SCHOOL—Bd. Educ., 225 Main St., plans by Alfonzo Alvarez, Upper Montclair, Junior-Senior High School. **$1,000,000.** CD 11/24/43.

▲ **N. Y., Brooklyn**—SCHOOL—Bd. Educ., 1 Flatbush Ave. exten., Zone 1, plans by Anthony DePace, 151 W. 46 St., New York, Zone 19, P.S. 143 addn. (Williamsburg Vocational High School), Havermeyer Ave., and N. 6th St., Proj. E-306. **$2,624,650.** (**Correction**—location). CD 3/17, under New York.

N. Y., Westbury—SCHOOL—Bd. Educ., Westbury, voted **$997,000** bonds Mar. 20, 20-room school, Powells Lane, near Northern State Parkway.

▲ **O., Dayton**—SCHOOLS—Bd. Educ., 232 N. Main St., Highview School addn. **$480,000;** Wogaman School addn. **$324,000;** Residence Park School addn. **$392,000;** Fairport School addn. **$336,000;** grade school, northwest of Gettysburg School **$614,000;** grade school, north of Ft. McKinley School **$614,000;** Col. White School addn. **$420,000.** CD 11/12/51.

O., Toledo—HIGH SCHOOL—Bd. Educ., Ottawa Hills School Dist., 2532 Evergreen Rd., bond election May 4, high school addn. **$975,000.**

▲ **O., Wapakoneta**—SCHOOLS—Wapakoneta City School Dist., Wapakoneta, bond election Apr. 1, constr. high school; Blume High School addns. **$1,140,000.** CD 11/10.

▲ **Okla., Oklahoma City**—SCHOOLS—Bd. Educ., 400 N. Walnut St., voted bonds Mar. 23, addnl. elementary schools. **$3,000,000.** Hudgins, Thompson & Ball, 1100 W. Main St., archts. CD 3/2.

▲ **Pa., Baden**—HIGH SCHOOL—Baden-Economy Twp. School Dist., R.D. 1, Freedom, plans by B. J. McCandless, 239 Fourth St., Ellwood City, Junior-Senior High School, **$1,718,000.**

Pa., Jeannette—SCHOOL—Bd. Educ., Jeannette, plans by Sorber & Hoone, 711 First Natl. Bank, Greensburg, 2 story, bsmnt., brick, block Seneca Heights Grade School. **$650,000.** CD 11/27/50.

▲ **Pa., Waymart**—LAUNDRY, etc.—General State Auth., 18 and Herr Sts., Harrisburg, expansion laundry and kitchen facilities and new electrical distr. sys., Fairview State Hospital. **$1,200,000.** A. F. Jones, c/o owner, ch. engr.

▲ **Tex., Dallas**—CLINIC SCIENCE—Southwestern Medical School of The University of Texas, Dr. George N. Aagaard, dean, 2211 Oak Lawn St., clinic science bldg. **$3,500,000.**

Tex., Jasper—SCHOOL—Jasper Independent School Dist., Jasper, school. **$500,000.**

Tex., Lubbock—SCHOOLS—Lubbock Independent School Dist., Lubbock, voted bonds Mar. 13, auditorium for Junior-Senior High School, **$350,000;** new Junior-High School, **$750,000;** No. 1 Elementary School, **$375,000;** No. 2 Elementary School, **$325,000;** No. 3 Elementary School, **$350,000;** No. 4 Elementary School, **$400,000.**

▲ **Tex., Lubbock** — AUDITORIUM, COLISEUM — Texas Technological College, Lubbock, plans by Haynes & Kirby, 1902 Dixie Dr., auditorium, coliseum, **$1,750,000.**

▲ **Utah, Salt Lake City**—PUBLIC SAFETY—Salt Lake City Corp., City-County Bldg., public safety bldg., incl. jail police court and No. 1 Fire Station. **$2,000,000.**

Utah, Salt Lake City—LIBRARY—Salt Lake City Corp., City-County Bldg., public library. **$500,000.**

Wash., Omah—HIGH SCHOOL—School District 19, Omah, plans by G. Rasque, Wash. Trust Bldg., Spokane, high school. **$600,000.** CD 3/15.

▲ **Wis., Glendale**—HIGH SCHOOL—Union Free High School District, 6711 Holly Court, plans by Fritz von Grossmann, 4630 W. Burleigh St., Milwaukee North Shore High School **$2,000,000.**

Wis., Hartland—SCHOOL—Hartford, Delafield & Merton Districts, Hartland, plans by Eschweiler & Eschweiler, 720 E. Mason St., Milwaukee, Zone 2, high school. **$645,000.**

Ont., London—UNIVERSITY—University of Western Ontario, London, plans by O. R. Moore & Co., 260 Dundas St., 1 story, bsmnt. university bldg. to provide cafeteria and dining room. **$525,000.**

▲ **Ont., Ottawa**—HOSPITAL—Carleton County Hospital Assn., Richmond, new "Carleton Hospital" on Stinson-Bompas Property, Hy. No. 15, Bells Corners, 1½ mi. from here. **$1,500,000.** CD 1/26/48.

▲ **Ont., Toronto**—REHABILITATION CENTER—Dpt. P. Wks., Parliament Bldgs., plans by G. N. Williams, c/o owner, deputy minister ch. archt., rehabilitation center for workmen's compensation board near Malton Airport. **$3,000,000.** CD 1/12/45.

▲ **Que., Quebec City**—PUBLIC BUILDING—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by E. A. Gardner, c/o owner, and G. Amyot, 2 Belvedere Ave., public building rear of Shed A at Anse au Foulon for Dept.

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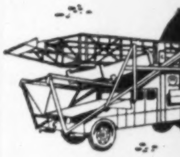
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COMMERCIAL BUILDINGS

▲ **Calif., Beverly Hills**—BANK—City National Bank of Beverly Hills, Beverly Hills, plans by Welton Becket & Assocs., 5657 Wilshire Blvd., Los Angeles, 4 story bank with parking, **$2,000,000.** Murray Erick Associates, 5657 Wilshire Blvd., Los Angeles, Calif., structural engrs.

Calif., Orange—DWELLINGS—Multi-Properties, 11030 Magnolia Blvd., North Hollywood, plans by AAA Drafting Services, 12401 Wilshire Blvd., Los Angeles, 69 frame, stucco dwellings. **$500,000.**

▲ **D. C., Wash.**—OFFICE—International Assoc. of Machinists, 9 and Mt. Vernon Pl., plans by Wilson & Denton, 1022 20 St. N.W., 11 story office, Connecticut Ave. and N St. N.W. **$2,500,000.**

▲ **Ill., Harvey**—DIAL EXCHANGE—Illinois Bell Telephone Co., 206 W. Washington St., Chicago, Zone 6, plans by Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, dial exchange bldg. **$1,500,000.**

Ill., Kankakee—SCHOOL—Catholic Bishop of Joliet, 16 E. Clinton St., Joliet, plans by Belli & Belli, 8 S. Dearborn St., Chicago, Zone 3, Catholic high school. **$750,000.**

▲ **Ind., Valparaiso**—HOME, etc.—Valparaiso University, O. P. Kretzmann, pres., Lutheran Deaconess Home, **$350,000-$400,000;** mens dormitory, **$800,000.**

Ky., Louisville—OFFICE—Corp., Dr. J. B. Marshall, Brown Bldg., plans by Weed, Russell, Johnson Assoc., 550 Brickell Ave., Miami, Fla., physicians' office, incl. 300-car parking lot, **$500,000.**

▲ **Ky., Louisville**—SHOPPING CENTER—Wm. A. Gardner, Coleman Bldg., Louisville, 51 store-shopping center, Preston Hy. at Dunett Lane. **$7,000,000.**

Ky., Louisville—CHURCH—Second Presbyterian Church, 128 S. Broadway, plans by Nevin & Morgan, Starks Bldg., brick, concrete block church, Old Brownsboro Rd. **$500,000,** E. R. Ronald & Assoc., 554 S. Third St., consult. engrs.

▲ **Ky., Pleasure Ridge**—SHOPPING CENTER—Wm. A. Gardner, Coleman Bldg., Louisville, shopping center, incl. 284,000 sq. ft. store space, 44 stores, Dixie Hy. (31-W). **$5,000,000.**

▲ **Md., Baltimore**—APARTMENT—Mullan Contg. Co., 3945 Greenmount Ave., plans by Jos. H. Foutz, 3941 Greenmount Ave., 105 apartment units, Greenway, Calvert and University Parkway, **$1,500,000,** Van Rensselaer Saxe, 1701 St. Paul St., struct. engr. Jas. Posey, 10 E. Pleasant St., mech. engr.

▲ **Mass., Worcester** — DORMITORY, CLASSROOM — Assumption College, 670 W. Boylston St., dormitory, classroom bldg. and science hall, new site 95 acre tract, north section of here. **$1,300,000.**

▲ **Mass., Worcester**—OFFICE—State Mutual Life Assurance Co., 340 Main St., plans by Cram & Ferguson, 248 Boylston St., Boston, 5 story, 180x500 ft. home office, Converse Estate, 412 Lincoln St. **$7,000,000.** CD 9/2.

▲ **Mich., East Detroit**—Y.M.C.A. BLDG.—Young Men's Christian Assn., Metropolitan Bd. Directors, 136 E. Elizabeth St., Detroit, brick, steel Y.M.C.A. East Detroit branch bldg., Ten Mile Rd. and Phlox St. **$1,000,000.**

Mich., Lansing—HOSPITAL—McLaughlin Hospital Bd. Trustees, 619 Townsend St., plans by Clark R. Ackley, 1811 E. Michigan Ave., brick, steel 40-bed hospital addn. **$500,000.** CD 1/6.

Mo., Jefferson City—HOSPITAL—Memorial Hospital Assn., 1203 Locust St., Kansas City, Mo., plans by Hewitt & Royer, 1203 Locust St., Kansas City, Mo., hospital, **$900,000.** CD 1/4/46.

Mo., Kansas City—CHURCH—First Assembly of God Church, 3100 E. 31 St., Kansas City, Mo., plans by Crute & O'Bryan, Bennett Bldg., Kansas City, Kan., church. **$750,000.**

▲ **N. Y., New York**—OFFICE—Broadway Realty, Inc., c/o Tito Di Vincenzo, archt., 2 Columbus Circle, Zone 19, alterations and addn. to convert 2 story stores into 10 story office bldg., 340 Broadway, northeast corner Worth St. **$1,500,000.**

N. Y., New York—APARTMENT—L-V Realty Corp., 122 E. 42 St., Zone 17, plans by Sylvan Bien, 565 Fifth Ave., Zone 17, apartment, 320-30 E. 80 St. **$575,000.**

▲ **O., Cincinnati**—SHOPPING CENTER—Kenwood Plaza, Inc., c/o Andrew Holm, 2782 Observatory St., shopping center, Montgomery and Kenwood Rds., 28-stores, 45-acre tract, 3,500-car parking. **$3,000,000.**

▲ **O., Cleveland**—SYNAGOGUE—Euclid Ave. Temple, 8206 Euclid Ave., plans by Percival Goodman, 40 E. 49 St., New York, N. Y. and Braverman & Halpern, 7016 Euclid Ave., synagogue, Fairmount Blvd. and Edgewood Road., 5-acre parking area, Beachwood Village. **$2,000,000.** CD 12/28/50.

▲ **O., Cleveland**—HOSPITAL—Lutheran Hospital, 2609 Franklin Ave., plans by Horn & Rhinehart, 1240 Huron Rd., brick hospital wing. **$2,500,000.**

▲ **O., Shiloh**—HOUSING—Hummel Constr. Co., c/o G. Robert Hummel, pres., Redder Ave., Dayton, 200 brick homes, 85-acre tract north of here, west side of S.R. 48 (N. Main St.). **$3,500,000.** Ralph L. Woolpert Co., 360 W. 1 St., Dayton, consult. engr.

O., Youngstown—HIGH SCHOOL—Catholic Diocese of Youngstown, 144 W. Wood St., plans by P. Arthur D'Orazio, Union Natl. Bank Bldg., 3 story U-shaped South Side Catholic High School. **$500,000.**

O., Youngstown—HIGH SCHOOL—Catholic Diocese of Youngstown, 144 W. Wood St., plans by P. Arthur D'Orazio, Union Natl Bank Bldg., Ursuline High School addn. **$500,000.**

Pa., St. Marys—HOSPITAL—Andrew Kaul Memorial Hospital, St. Marys, plans by Walter Rittenhouse, Boarts Bldg., Kittanning, brick, steel hospital addns., remodeling. **$500,000.**

Va., Warwick—RESIDENCES—L. B. Weber, Oyster Point, fifty 1 story frame, masonry residences. **$500,000.**

▲ **Wis., Green Bay**—HOSPITAL—Hospital Sisters of the Third Order of St. Francis, 840 S. Webster Ave., plans by Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., Green Bay, 425-bed St. Vincent's Hospital **$5,500,000.**

▲ **Alta., Edmonton**—STORE—Hudson's Bay Co., 79 Main St., Winnipeg, Man., plans by Moody & Moore, 295 Broadway Ave., Winnipeg, Man., 3 story, bsmnt., steel, concrete store extension, Jasper Ave., 102 and 103 St. **$3,250,000.**

▲ **Que., Cote St. Luc**—BUNGALOWS—Elite Investments Corp., c/o Ben-Ami Shulman, 5174 Cote des Neiges Rd., Montreal, 182 bungalows on new streets off Westminister Ave. **$2,275,000.**

INDUSTRIAL BUILDINGS

Ga., Statesboro—PLANT—Electronics, Inc., c/o Bergen & Bergen, archts., 127 Habersham St., Savannah, plant, **$500,000.**

▲ **Ill., Niles**—BAKERY—Salerno Megowan Biscuit Co., 4500 W. Division St., Chicago, plans by Graham Anderson Probst & White, 80 E. Jackson St., Chicago, Zone 4, first unit, 100x125 ft. bakery on 14-acre tract, **$1,250,000.**

▲ **Ind., Indianapolis**—PLANT—International Harvester Co., Emerson A. Welles, plant mgr., 1065 W. Washington St., plant addns., Brookville Rd. **$4,000,000** with equip.

Minn., St. Paul—GRAIN ELEVATOR—Archer-Daniels-Midland Co., S. Mairs, ch. bd. directors, Roanoke Bldg., Minneapolis, 2,000,000 bu. grain elevator, Drake St. and Mississippi River, **$500,000.**

Neb., Fremont—PLANT—Associated Seed Growers, Inc., Fremont, plans by Todd-Hedeen & Assocs., archts.-engrs., 80 Commercial St., Waterloo, Ia. 4 story seed processing plant. **$500,000.**

N. J., Roseland—MACHINE SHOP—Kidde Precision Tool Co. (Bloomfield Tool Corp., 35 Farrand St., Bloomfield, N. J.) 60,000 sq. ft. machine shop, Loucust Ave. **$500,000.** Walter Kidde Constructors, Inc., 140 Cedar St., New York, N. Y., consult. engr.-archt. CD 5/20/52

▲ **O., Lorain**—POWER PLANT—Ohio Edison Co., 47 N. Main St., Akron, Edgewater Power Plant addn. to house 90,000 kw turbo-generating unit. **$16,000,000.**

▲ **Pa., Ellwood City**—MANUFACTURING—Townsend Co., New Brighton, plans by Joseph F. Bontempo, assoc. archt., Baker Bldg., Rochester, 1 story, 81,000 sq. ft. brick, block, steel frame, steel mfg. bldg. **$1,000,000.**

Pa., New Bethlehem—PLANT—Crawford Furniture Mfg. Corp., Allen St. Ext., Jamestown, N. Y., 1 story, bsmt. 200x200 ft., tile furniture mfg. plant. **$500,000.** Reliable Eng. Co., 2605 Beale Ave., Altoona, engr.

Tex., Fort Worth—SALES, SERVICE, etc.—Dick Donner Motors, 915 W. 7th St., plans by Consolidated Architects-Engineers, archts.-consult. engrs. 2304 W. 7th St., 1 story, 175,000 sq. ft., masonry auto-sales-service-storage-parts, rein.-con. fdn., etc. **$750,000.**

▲ **Wis., Wauwatosa**—PLANT—Briggs & Stratton Corp., 2711 N. 13 St., Milwaukee, plans by Giffels & Vallet, Inc., archt and engr., 1000 Marquette Bldg., Detroit, Mich., mfg. plant, **$5,000,000.**

UNCLASSIFIED

Idaho—RAIL, etc.—Chicago, Milwaukee, St. Paul & Pacific R. R. Co., W. G. Powrie, ch. engr., Union Station, Chicago 6, Ill., rail and expansion of communications facilities. **$630,000.**

▲ **Minnesota**—RURAL DISTRIBUTION LINES, etc.—Rural Co-operative Assoc., Elk River, 70 mi. 69 KV transmission lines, sub-station, facilities, generating facilities, sys. Imprvs., Hennepin Co. **$1,630,000.** CD 1/26/49.

Mississippi — RURAL DISTRIBUTION LINES — Coahoma Electric Power Assoc., Lyon, 256 mi. rural distr. lines, sys. imprvs., Coahoma Co. **$625,000.** CD 4/26/46.

▲ **Nebraska**—RURAL DISTRIBUTION LINES—Dawson County Public Power Dist., Lexington, line extens. and sys. imprvs. Dawson Co. **$1,020,000.** Raymond H. Reed & Co., Columbus, consult. engrs. CD 6/16.

▲ **Nebraska**—PIPE LINE—Kansas-Nebraska Natural Gas. Co., Phillipsburg, Kan., pipe line from Sidney to Alliance, and distr. lines in Alliance. **$1,000,000.** S. D. Ford, Hastings, owner's ch. engr.

N. Y., New York—RECREATION CENTER—Dpt. Parks, Arsenal Bldg., Proj. P-153, recreation center, Chelsea Park addn., incl. land acquisition. **$900,000.**

▲ **N. Y., New York**—RECREATION CENTER—Dpt. Parks, Arsenal Bldg., Proj. P-252, recreation center, adjacent to Triborough Houses. **$1,276,000.**

▲ **Wash., Seattle**—SHED, etc.—Port of Seattle, Bell St. Terminal, Seattle, Zone 1, complete 1 net shed and constr. 2 more at Salmon Bay Terminal, **$190,000;** new central wharf section at East Waterway terminal, **$695,000;** rebuild aprons at Hanford and Stacy St. terminal, **$500,000;** rebuild south apron of Pier 48, **$150,000.** G. T. Treadwell, ch. engr. CD 10/17/47

▲ **Wis., Menasha**—GENERATING UNIT—City Water & Light Comn., Menasha, addnl. generating unit, incl. turbine, boiler, etc. **$1,600,000.** Stanley Eng. Co., Muscatine, Ia., consult. engr.

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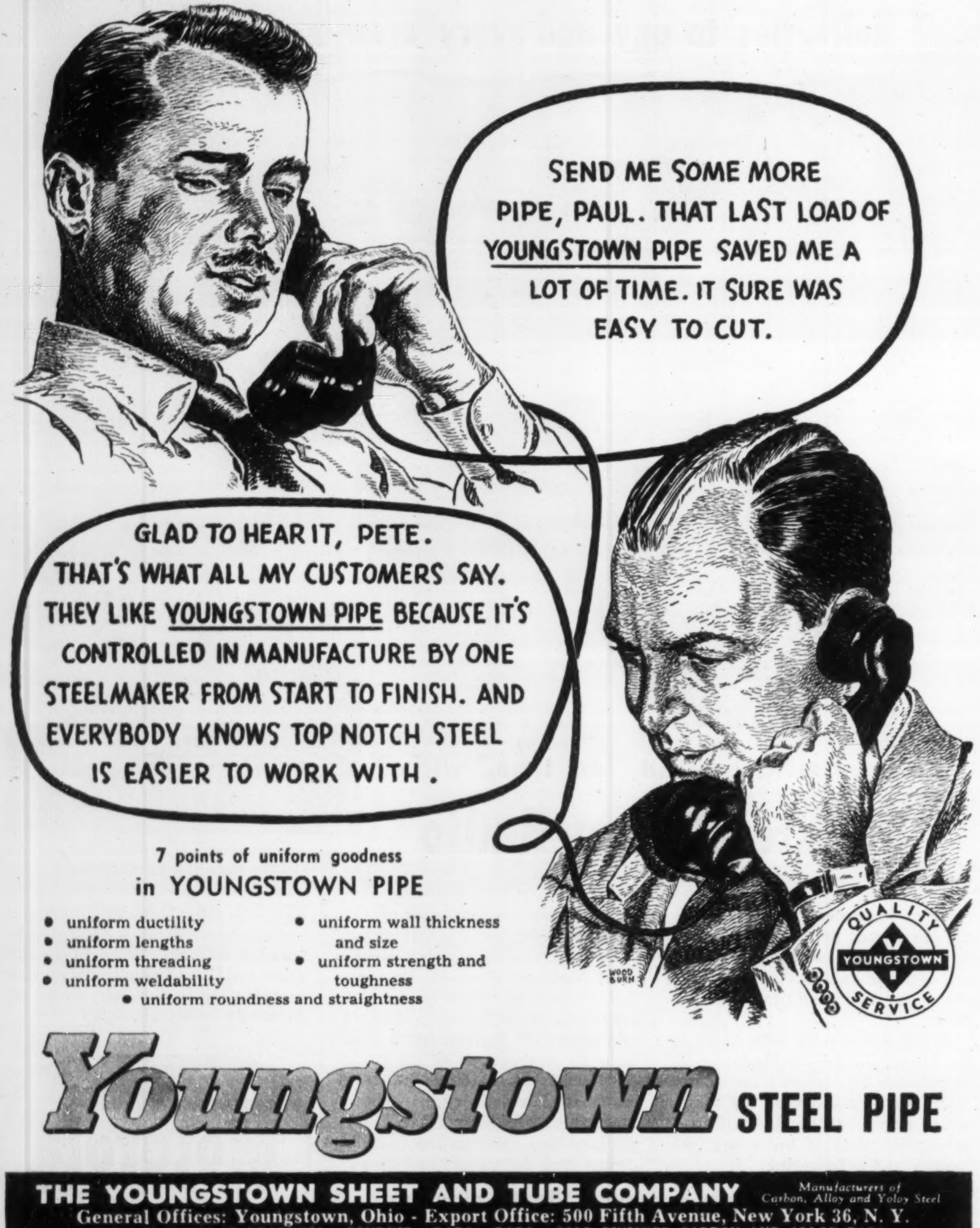
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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
April 13, 15 Massachusetts April 14 Rhode Island

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
A. V. **Taurasi**, 139 Jacques St., Somerville, Mass. CA **$4,449,538**, est. $5,000,000. U-229 (6) hy. and bridge constr. Rte. 128 to Greenledge St., Dedham, Westwood and Needham. CD 3/15, under LB.

▲† **Theodore Loranger & Sons**, 404 Nash Rd., New Bedford, Mass. LB **$2,173,000**, est. $2,500,000-$5,000,000. double cantilever hangar, Hanscom Air Force Base, ENG-19-016-54-45, BEDFORD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 4. CD 2/10.

▲† **Wexler Constr. Co.**, 118 Needham St., Newton Highlands, Mass. LB **$1,123,419**, est. $1,500,000. constr. 4 airmen's dormitories, 500-man mess, Hanscom Air Force Base, ENG-19-016-54-73, BEDFORD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 2. CD 2/1.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John A. Volpe Constr. Co., Inc.**, 54 Eastern Ave., Malden, Mass. CA Est. **$1,000,000**. Technical SCHOOL Rockwood St., JAMAICA PLAIN, MASS. Don Bosco Trade School, 94 Horace St., East Boston, Mass. CD 10/22.

▲ **Westwood Homes**, c/o Ryder, Struppmann & Neumann, archts., 163-18 Jamaica Ave., Jamaica, N. Y., Owner Builds, **$1,400,000**, 40 HOUSES on tract on Newtown Turnpike, NORWALK, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
April 15 Pennsylvania April 20 Maryland, New Jersey
April 22 New York
STREETS AND ROADS
April 13 Maryland, New Jersey April 15 Pennsylvania
April 22 New York April 27 New Jersey

▲† **N. J., Wrightstown** — HEADQUARTERS, etc — B.A. 4/15—U.S. Eng., 121 North Broad St., Phila., Pa., headquarters bldg, etc. McGuire Air Force Base, Eng.-36-109-54-177, $1,000,000. Extended date. Erwin Gerber, Commerce Bldg., Newark, N. J., archt. and engr. CD 3/5

▲† **N. J. Wrightstown**—APRON, etc.—B.A. 4/20—U. S. Eng., 121 North Broad St., Phila., Pa., alert apron, primary taxiway, warm-up pad, and widening, strengthening NE-SW runway exten., McGuire Air Force Base, ENG-36-109-54-204. Extended date. Porter, Urquhart & Beavin, 415 Frelinghuysen Ave., Newark, engrs. and archts. CD 3/5.

BIDS ASKED—BUILDINGS

▲† **Pa., Phila.**—BOILER and TURBINE LABORATORY—B.A. 4/13—Dpt. Navy, Phila. Navy Base, will receive bids from eleven previous low bidders on general constr. of naval boiler and turbine laboratory bldg. addn., and Bldg. No. 520 alterations, Naval Base. $3,710,000, NOY 74547, Spec. 35564. $3,710,000. Borie & Smith, 1531 Locust St., archts. Harris-Dechant Assocs., 123 S. Broad St., engrs. CD 3/8, under LB.

▲ **Pa., Villanova**—STUDENT UNION—B.A. 4/13—Villanova University, Villanova, students union bldg. $1,500,000. Henry D. Dagit & Sons, 1329 Race St., Phila., archts. CD 1/12.

▲ **Pa., Paoli**—SHOPPING CENTER—B.A. 4/15—Paoli Markets, Inc., c/o John J. Mailey, Paoli, shopping center, $2,000,000. J. Margolis, 2206 St. James Pl., Phila., archt.

▲ **Pa., Lansdale**—HIGH SCHOOL—B.A. 4/20—North Penn Joint School Bd., Lansdale, Junior High School; Senior High School addn. $2,859,091. Howell Lewis Shay, Packard Bldg., Phila., archt. William H. Gravell & Assocs., 2031 Chestnut St., Phila., engrs. Bids Aug. 26 rejected, LB **$2,079,000**. CD 9/16, under LB.

▲ **N. J., Trenton**—SCHOOL—B.A. 4/26—Ewing Twp. Bd. Educ. Parkway Ave., Elementary and Junior High School $1,750,000. Micklewright & Mountford, 72 Ewing St., archts. Extended date. CD 3/16.

▲† **N. Y., Fort Terry**—LABORATORY—B.A. 5/20—U. S. Eng., 80 Lafayette St., New York, Zone 13, animal disease laboratory, Plum Island, Serial No. Eng-30-075-54-99. $5,000,000-$10,000,000. CD 1/20, under LB.

▲ **Pa., Phila.**—HOUSING—B.A. 5/5—Phila. Housing Auth., 42 S. 15 St., residential development, Harrison Proj., 10 and Master Sts. $3,320,000. Davis Dunlop & Carver, 1717 Sanson St., archts. William A. Gravell & Assocs., 2031 Chestnut St., engrs. CD 12/14/50.

▲ **Pa., Phila.**—APARTMENT—Bids Asked—George S. Idell, archt., 117 S. 17 St., 364 unit apartment, 21 St. and Chestnut St. for Matthew K. Stevens, Lewis Tower Bldg. $10,000,000.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sokolov Bros. & Sons and Saul Lerner**, c/o Karl Bloch, archt., 7 Landsdown Ave., Merrick, N. Y. Owner Builds. **$1,000,000**. SHOPPING CENTER, 4-acre tract, Broadway and Nathalie St. on Rte. 110 halfway between AMITYVILLE and FARMINGDALE, N. Y.

▲ **Hollins Estates Homes**, c/o Stanley Klein, archt., 89-31, 161 St., Jamaica, N. Y. Owner Builds. **$1,800,000**. 100 HOUSES, tract on Hollins Lane, south of Merrick Rd., EAST ISLIP, N. Y.

▲ **Vidoni Homes**, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$1,800,000**. 105 HOUSES, tract at Jericho Turnpike and Oakwood Rd., HUNTINGTON, N. Y.

▲ **William E. O'Neill Constr. Co., Inc.**, 403 Wilson Bldg., Syracuse, N. Y., CA, **$3,922,270**. est. $4,000,000. nineteen bldgs. to house instruction, etc. and service connections, VETERINARY COLLEGE, Cornell University, Spec. 17162, 3-4-5 & 6, ITHACA, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Jan. 7. CD 1/13, under LB.

▲ **Oakwood Park Homes**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. **$3,000,000**. 178 HOUSES, tract on Jericho Turnpike, east of Rte. 106, JERICHO, N. Y.

▲ **Austin Co.**, 600 Fifth Ave., New York, N. Y., CA **$1,000,000**, for Namm-Loeser Branch;
Owner Builds. **$1,500,000** for remainder of SHOPPING CENTER and other stores on Union Turnpike between Lakeville and New Hyde Park Rds., LAKE SUCCESS, N. Y. Lake Success Shopping Center, c/o Peck & Shactman, 19 W. 44 St., New York 36, N. Y. CD 12/30.

▲ **Hallmark-At-Sands Point Homes**, c/o E. J. Capello, archt., 45 Middleneck Rd., Great Neck, N. Y. Owner Builds. **$2,000,000**. 40 HOUSES, tract at Middle Neck Rd., SANDS POINT, N. Y.

▲ **Secane Homes Co.**, 225 S. 69 St., Upper Darby, Pa. Separate Contracts. **$2,225,000**. RESIDENTIAL DEVELOPMENT, Chichester Rd., CHESTER, PA.

▲ **Feasterville Heights, Inc.**, 2599 Baird Blvd., Camden, N. J., Separate Contracts. **$2,000,000**. RESIDENTIAL DEVELOPMENT, Bridgetown Pike and Fay St., FEASTERVILLE, PA.

▲ **Southwest Temple Corp.**, 1201 Chestnut St., Phila., Pa. Separate Contracts. **$2,376,000**. HOUSING apartment development, 11 and Master Sts., PHILA., PA.

▲ **Harry D. Toben**, 6204 Castor Ave., Phila, Pa. Separate Contracts. **$1,147,500**. RESIDENTIAL DEVELOPMENT, PHILA., PA.

▲ **S. Yellin & Son, Inc.**, 222 N. 11 St., Phila., Pa. CA **$5,000,000**. APARTMENT (195 units), STORES and GARAGE, 4700 Spruce St., PHILA., PA. Owner c/o George S. Idell, archt., 117 S. 17 St., Phila., Pa.

▲ **Ragnar Benson, Inc.**, 2 Gateway Center, Pittsburgh, Pa. LB **$1,475,000**, general constr.;
Harry Dougherty & Sons, 280 Federal St. E, Youngstown, O., LB **$314,400**, heating for 6 story steel brick, stone HOSPITAL, 1 story LAUNDRY and SHOP, WASHINGTON, PA. Washington Hospital, Leonard Ave., Washington, Pa. Bids Mar. 25. CD 3/3.

▲ **Rambleton Acres, Inc**, Att. Robert E. Bray, Wilmington Manor, Del., Separate Contracts, **$1,200,000**. RESIDENTIAL DEVELOPMENT, Kirkwood Hy., NEWARK, DEL.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
April 14 Louisiana
STREETS AND ROADS
April 14, 28 Louisiana

BIDS ASKED—BUILDINGS

▲ **Ky., Louisville**—PRODUCE MARKET—B.A. 4/14—Louisville Produce Assn., Fifth and Jefferson Sts., Farmers Produce Market 2 bldgs. 114x635 ft., 1 bldg 31x520 ft., steel frame, concrete block, Benchel $1,500,000. Extended date, W. S. Arrasmith & Wm. Tyler, Madrid Bldg., archts. E. R. Ronald & Assoc., 544 S. Third St., engrs. CD 3/31.

SOON LETS CONTRACT—BUILDINGS

▲ **Ky., Louisville**—PRODUCE MARKET—Louisville Produce Assoc., c/o W. S. Arrasmith & Wm. C. Tyler, archts., Madrid Bldg, soon lets contract, Farmers Produce Market 2 bldgs., 114x635 ft., 1 bldg. 31x520 ft. steel frame, concrete block, $1,400,000. Former contract cancelled. CD 4/27, under CA.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Byck-Worrell Constr. Co.**, E. Bay St., Savannah, Ga., LB **$1,573,000**. HOTEL addn., ATLANTA, GA. Dinkler-Plaza Hotel, Forsyth St., Atlanta, Ga. Bids Mar. 26. CD 3/17.

▲ **Batson-Cook Co.**, West Point, Ga., CA, **$2,000,000** PLANT addn., ROME, GA. General Electric Corp., River Rd., Schenectady, N. Y. Bids Mar. 2. CD 2/25.

MIDDLE WEST

BIDS ASKED—BUILDINGS

STATE HIGHWAY LETTINGS
BRIDGES
April 15 Illinois April 20 Wisconsin
STREETS AND ROADS
April 13 Ohio April 15 Illinois
April 20 Wisconsin

▲ **Ill., Chicago**—B.A. 4/27—City, City Hall, double bascule trunnion bridge over Chicago River at Van Buren St. $3,250,000. CD 10/16/52.

BIDS ASKED—BUILDINGS

▲ **O., Cincinnati**—HIGH SCHOOL—B.A. 4/22—Bd. Educ., 216 E. 9 St., James Gamble Junior High School, Westwood-Northern Blvd., $1,650,000. Plans deposit $50. Geisberg & Gelespie, Ingalls Bldg., archts. Morrell & Reik, Cincinnati Union Terminal Bldg., engrs. CD 2/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Haig M. Boyajohn & Assoc., Inc.**, 990 W. Third Ave., Columbus, O., LB **$1,426,359**, hangar, warehouse, motor service bldg., heating plant, paint storage bldg., paving roads and parking areas, Lockbourne Air Force Base, COLUMBUS, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. CD 3/1.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Knowlton Constr. Co.**, 106 N. Main St., Bellefontaine, LB **$1,004,000**. men's DORMITORY; LB **$506,000**, women's DORMITORY, BOWLING GREEN, O. Bowling Green State University, Bowling Green, O. Bids Mar. 23. CD 3/16.

▲ **B & B Constr. Co.**, 641 Himrod Ave., Youngstown, O., CA **$2,500,000**. general contract 34-store center, brick, steel shopping center, Mahoning Rd. N.E., CANTON, O. Canton Plaza, Inc., c/o Wm. Cafaro, Warren, O.

▲ **Anthoni Visconsi**, 1010 Euclid Bldg., Cleveland, O. Own Forces. **$6,500,000**. L-shaped Visconsi SHOPPING CENTER addn. behind present 20 stores, 5,000 cars parking facilities, MIDDLEBURG HEIGHTS, O. Rudolph J. Grosel, The Arcade, Cleveland, O., archt. CD 5/13/49.

▲† **Blount Bros. Constr. Co.**, Bell Bldg., Montgomery, Ala., CA **$1,272,000**, install misc. equipment in decontamination bldg.;
Detroit Steel Products, 2250 E. Grand Blvd., Detroit, Mich., CA **$1,076,033**, furnish steel framing, misc. iron, insulated panels and sheet metal material for process bldg.;
Bloomer Heating & Ventilating Co., 311 Kentucky Ave., Paducah, Ky., CA **$83,690**, furnish instrumentation ducts for process bldg.;
Graybar Electric Co., 115 W. McMicken St., Cincinnati, O., CA **$104,921**, furnish control and recording equipment for PROCESS BLDG., (Subcontractors under Peter Kiewit Sons' Co., P. O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave., N.W. Wash. 25, D. C., PIKETON and WAKEFIELD, O. Grand total $2,536,644. CD 8/13/52, under CA.

▲† **Charles Harris Co.**, 474 University Ave., St. Paul, Minn., LB, **$1,795,300**, 12 INDUSTRIAL BUILDINGS, 6 tank shelters, related facilities, Badger Ordnance Works, ENG-47-013-54-17, BARABOO, WIS. U. S. Eng., 428 Federal Bldg., Milwaukee Wis. Bids Mar. 26. CD 3/2.

▲ **Gebhard-Berghammer, Inc.**, 5420 W. State St., Milwaukee 8, Wis., LB, **$1,095,400**, HOSPITAL addn. MILWAUKEE, WIS. Evangelical Deaconess Hospital, 1821 W. Wisconson Ave., Milwaukee 3, Wis. Bids Mar. 9. CD 2/8.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
April 15 Kansas April 27 Montana
STREETS AND ROADS
April 15, 16 Kansas April 27 Montana

▲ **Ark., Hot Springs**—B.A. 4/27—City, City Hall, sewage treatment plant and lines. $1,000,000. Plans deposit $35. Marion L. Crist & Assocs., Union Life Bldg., Little Rock, consult. engrs. CD 9/3.

▲ **Tex., Corpus Christi**—B.A. 4/21—City, City Hall, water filtration plant, Calallen, $4,000,000. Whitney & Tomlinson, 410-C Buccaneer Dr., archts. Reagan & McCaughan, Wilson Bldg. and Thomas A. Duce Assocs., Murray Bldg., engrs. CD 3/5.

BIDS ASKED—BUILDINGS

▲ **Tex., Fort Worth**—HIGH SCHOOL—B.A. 5/5—Fort Worth Public School, c/o Ed. P. Williams, bus. mgr., 409 E. Weatherford St., constr. new Pascal High School and rehabilitation existing school. $1,550,000. Plans deposit $50. A. George King & Assocs., 819

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PITTSBURGH 20, PA.

Penn St., and Preston M. Geren, 1607 Fort Worth Natl. Bldg., archts. CD 1/14.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Tecon Corp.**, 1201 Main St., Dallas, Tex., CA, **$4,159,384**, paving apron, runway, taxiways, Little Rock Air Force Base, JACKSONVILLE, ARK. U. S. Eng., Gay Bdg., Little Rock, Ark. Bids Mar. 18. CD 3/29, under LB.

▲† **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex. CA **$1,492,446**, N.A.R.T. hangar bldg. and leantos at Lincoln Naval Air Base, Spec. 35939, LINCOLN, NEB. Ninth Naval Dist., Great Lakes, Ill. Bids Feb. 12. CD 2/18, under LB.

▲ **Hoffman & Borders and Fred Hall**, Box 2096, Waco, Tex., LB **$1,566,000**. sewage treatment plant remodeling and constr. new structures, Proj. No. 475-2-53, WACO, TEX. City, Waco, Tex. Lockwood & Andrews, Union Natl. Bank Bldg., Waco, Tex., engrs. Bids Mar. 26. CD 3/19.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Payne & Johnson**, Sweetwater, Tex., CA, **$1,350,000**. cycling PLANT, to produce butane, propane and natural gasoline, near SWEETWATER, TEX. Payne & Johnson **and B. G. Byars, Kilgore and Tyler, Tex. CD 2/15.**

FAR WEST

SOON LETS CONTRACT—BUILDINGS

▲ **Wash., Seattle**—PARKING GARAGE—System Garages, Inc., 601 Olive Way, soon lets contract 2,400 car rein.-con. parking garage, first unit of 4,000-car project $1,500,000. Olsen & Kitchen, 1411 4 Ave. Bldg., engrs. Stiles Clements, 210 W. 7 St., Los Angeles, Calif., archt. CD 3/17.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Davis & Butler**, 422 Dooly Bldg., Salt Lake City, Utah, LB **$1,434,294**, est. $1,200,000. sewage treatment plant, PROVO, UTAH, City, Provo, Utah, Bids Mar. 10. CD 2/25.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
J. E. Haddock Ltd., 3835 S. Foothill Blvd., Pasadena, Calif., LB, **$3,135,122**, grading, paving pumping plant, undercrossings, etc. 14 mi. Harbor Freeway between 42 and 23 Sts., Los Angeles, Los Angeles Co. Bids Mar. 25. CD 2/26.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Rayonier Inc.**, Port Angeles, Wash., Day Labor, **$1,000,000**. 2 story, 60x95 ft. BARKER BLDG. and other WOODMILL addns. at pulp plant, PORT ANGELES, WASH.

CANADA

SOON LETS CONTRACT—BUILDINGS

▲ **Que., Montreal**—WAREHOUSE—Ford Motor Co. of Canada, Ltd., Windsor, Ont., soon lets contract, 1 story, 242x415 ft., rein.-con., steel, brick, block auto parts warehouse, Cote de Liesse Rd. $1,000,000. T. Pringle & Son Ltd., engrs., and P. Booth, archt., 485 McGill St., Montreal, Que. CD 11/11.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Pigott Constr. Co., Ltd.**, Pigott Bldg., Hamilton, Ont., CA, **$1,023,000**. 3 story, concrete, brick, stone 100,000 sq. ft. HOME for the AGED, HAMILTON, ONT. Municipality, City Hall, Hamilton, Ont. Bids Mar. 3. CD 3/31, under LB.

▲ **Charles Duranceau Ltd.**, 2545 Jacques Hertel St., Montreal, Que., CA, **$1,500,000**. 5 story, bsmnt., 175x370 ft., and 2 story, 40x102 ft., concrete, brick, stone COLLEGE, Papineau Ave., MONTREAL, QUE. Congregation de Notre Dame, 3040 W. Sherbrooke St. W., Montreal, Que. Bids Mar. 15. CD 2/24.

▲ **Taylor Coates Development Co.**, 190 Quinn St., Longueuil, Que., Owner Builds, **$3,500,000**. concrete, brick HOUSING program on new streets, Ville Jacques, MONTREAL, QUE.

ALASKA

HEAVY CONSTRUCTION

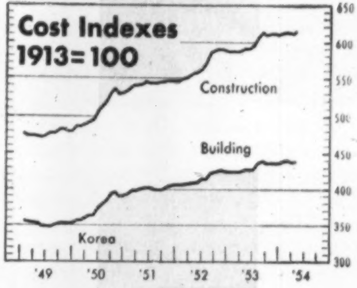
LOW BIDS AND CONTRACTS

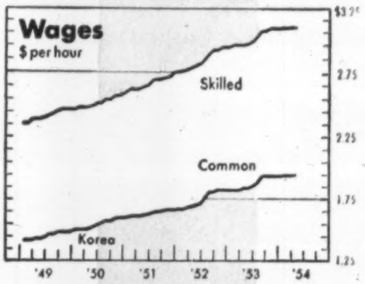
▲† **ALASKA**—Alaska Road Comn., Dpt. Interior, 4 and Harris Sts., Juneau,
Lytle & Green and S. Birch & Sons, Securities Bldg., Seattle 1, Wash., CA **$1,276,096**, plant mix paving 63 mi. Glenn Hy., Big Timber to Porcupine, Proj. C1, D1. Bids Mar. 16. CD 3/22, under LB.

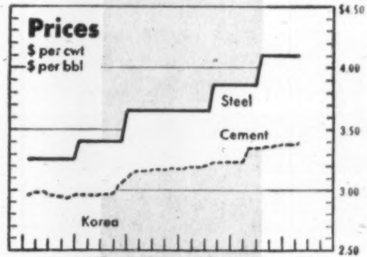
△† **Grove, Shepherd, Wilson & Kruge**, 247 Park Ave., New York, N. Y., LB **$4,196,083**, est. $4,473,426, eight 3 story, 37x220 ft. rein.-con. airmens dormitories, three 1 story 112x141 ft. rein.-con. mess and admin. bldgs., etc., Ladd Air Force Base, ENG-95-507-54-77, ALASKA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Mar. 24. CD 2/15.

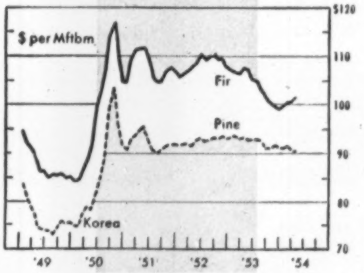
(Proposal Advertisements see pp. 132 to 135)

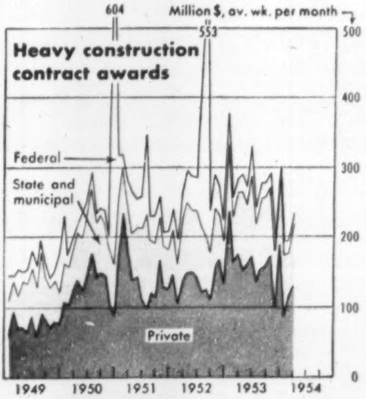
APRIL CONSTRUCTION SCOREBOARD











ENR INDEXES (1913 = 100), 20-cities' average	1954 April	% Change from last Month	Year
Construction Cost	615.36	+ 0.2	+ 4.3
Building Cost	437.94	+ 0.2	+ 2.7

WAGE-RATES, 20-cities' average			
Common	$1.947	+ 0.2	+ 6.6
Skilled (aver. 3 trades)	3.100	0.0	+ 5.1
Bricklayers	3.369	0.0	+ 2.7
Structural Ironworkers	3.074	0.0	+ 6.8
Carpenters	2.857	0.0	+ 6.1

MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.397	+ 0.4	+ 0.9
Structural Steel, (3-mill aver.), per cwt	4.100	0.0	+ 6.5
Sand, per ton	2.239	+ 1.7	+ 2.9
Lumber, 2x4 Fir, per M. ft. bm	101.666	+ 1.0	− 5.5
Lumber, 2x4 Pine, per M. ft. bm	90.216	− 0.2	− 3.2
Common brick, per M	33.136	+ 0.6	+ 4.6
Ready-mixed concrete, per c. y	12.016	+ 0.3	+ 4.7
Structural Clay Tile, 3x12x12 per M	160.468	+ 0.2	+ 3.9

CONTRACTS AWARDED (Millions)	1954 Mar.	1954 3-Mos.* (12-Weeks)	% Change from '53 Mar.	% Change from '53 3-Mos.* (13-Weeks)
Total U. S. (ENR reported)	$933.6	$2,466.6	−17.7	−33.9
Private	526.9	1,336.8	−24.3	−42.6
Public	406.7	1,129.8	− 7.2	−19.3
Federal	56.9	206.6	−28.3	−45.0
ENR Volume Index, '13 = 100	426	370	− 2.5	−31.9

NEW CAPITAL (Millions)				
Total	606.1	1,614.4	+ 3.0	− 6.7
State & Municipal Bond Sales	412.8	879.6	− 3.0	− 9.4
Corporate Security Sales	188.6	710.7	+22.5	− 2.6
Federal (non-federal work)	4.7	24.1	−45.3	−20.0
Federal (federal work)	.....	.....	......	......

* Computed on weekly average

MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1954 Jan. (J) Feb. (F)	12-Mos. (53) 2-Mos. (54)	% Change from Mo.	% Change from Yr.-Cum.
Cement bbls Bu. of Mines	11.143(J)	260.889(12)	−17.5	+ 3.9
Fabr. Struc. Steel, tons AISC	252(F)	494(2)	+ 0.4	+ 0.4
Lumber, mil. ft. bm., NLMA	2.604(J)	38.128(12)	−14.4	+ 1.1
Lumber Prod., mil. ft. bm., NLMA	2.794(J)	39.091(12)	− 6.1	+ 3.4
Contract Const. Employ., BLS	2.240(F)	2.246(2)†	− 1.7	− 1.9

† Average

ENR INDEX REVIEW

	Construction Cost 1913 = 100	Construction Cost 1949 = 100	Building Cost 1913 = 100	Building Cost 1949 = 100	Volume 1913 = 100	Volume 1949 = 100
1953						
Apr...	590.13	123.71	426.45	121.22	524	151
May...	589.63	123.61	426.29	121.18	499	144
June...	593.77	124.47	426.27	121.17	572	165
July...	604.70	126.77	435.21	123.73	447	129
Aug...	612.67	128.44	436.98	124.22	487	141
Sept...	610.97	128.08	436.10	123.97	487	141
Oct...	611.76	128.25	436.31	124.03	528	153
Nov...	611.92	128.28	436.34	124.03	354	102
Dec...	611.48	128.19	435.90	123.91	547	158
Av....	**600.06**	**125.79**	**430.92**	**122.49**	**506**	**146**
1954						
Jan....	614.04	128.72	436.88	124.19	338	98
Feb...	614.71	128.86	437.55	124.38	345	100
Mar...	613.99	128.71	437.17	124.27	426	123
Apr...	615.36	129.00	437.94	124.49	...	...

BUSINESS AND FINANCE

March contract awards climb; industrial volume lags behind

As expected, heavy construction contracts reported in March to ENR and the CONSTRUCTION DAILY pulled out of their January-February slump and climbed to $934 million.

Although this total was 18% below March of last year (the second highest March in history), it was also 22% above the volume for February of this year. Furthermore, latest figures indicate that contracts awarded during the first week in April racked up the biggest total—$330 million—for any week so far this year.

So far, the improvement in the construction outlook is limited to private and to state and municipal work. Federal contracts slipped still lower in March to $57 million, the smallest volume of federal work awarded during that month since 1947. Private work increased 15% over February awards—to $527 million. State and municipal contracts made the best showing—a 47% increase over February and only 3% below March 1953.

• **Public work**—The sharp rise in state and municipal awards to a total of $350 million got most of its impetus from a surge in public building awards (excluding housing). Schools are the big item in this category. This is the only type of public construction where awards for the first quarter are ahead of last year.

Highway contracts were also higher in March, though they were not as high as in January and were off 19% from March of last year. However, this work should get into high gear before long (page 129). Highway awards during the first week of April alone were more than half of the total figure that was reached for the entire month of March.

• **Private work**—The weakest spot here is industrial building. March contracts dropped below February and were 64% below March 1953 volume. Mass housing continued to climb last month. It was 14% over March 1953, although for the first three months volume is still 26% below the corresponding 1953 period. Commercial awards also climbed fast in March. They were 37% above last year. For the first quarter of 1954 this is the only category in the field of private construction that is ahead of last year. In private unclassified work—pipelines, transmission lines, etc.—awards continued to run well below last year. This category is off 72% for the quarter.

• **Regions**—The South and New England were the only regions where March awards were below February. In every other region, awards were up sharply and volume was the highest for any month so far this year. However, the Midwest was the only region where volume was higher than in March 1953.

For the first quarter, total contracts are below a year ago in all regions. But business is holding up best in the Middle Atlantic region, down 6%, and in New England, off 11%. The Midwest has the sharpest decline —47%—compared with last year. This region had the biggest of the unusually large contracts let early last year. Three projects alone accounted for about half the dollar volume of contracts awarded in the first quarter of 1953.

New business is down 45% in the Far West for the first quarter. But since large projects don't figure as a major reason for the poor comparison with the like 1953 period, it appears that the Far West is suffering more than any other region for lack of new contracts.

Contract volume is down 37% in the west-of-Mississippi region for the first quarter, exactly the same percentage as for the first two months of the year. In the South, the decline in March awards has pulled the 1954 volume 35% under the same 1953 quarter. It was 29% for the first two months.

ENGINEERING CONSTRUCTION CONTRACTS—MARCH 1954

ENGINEERING NEWS-RECORD *reports continental U. S. construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation, $34,000; other public works, $60,000; industrial buildings, $82,900; other buildings, $300,000*

Four Weeks—Thousands of Dollars (000 omitted)

	March, 1954							—U. S. Cumulative— Three Months		%	
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1954 (12 weeks)	1953 (13 weeks)	Change '53 to '54 Avg. Wk.	Canada March 1954
Public Works											
Waterworks	660	1,606	1,931	3,398	5,160	3,809	**16,564**	**44,510**	59,688	—19	2,500
Sewerage	1,116	4,461	3,996	6,245	8,139	5,591	**29,548**	**71,699**	91,686	—15	1,507
Bridges	482	7,233	5,590	5,291	5,207	6,516	**30,319**	**99,558**	149,919*	—28	....
Earthwork and drainage	167	1,732	4,416	521	6,355	7,053	**20,244**	**66,836**	91,737	—21	718
Streets and roads	3,303	15,135	17,613	12,416	30,570	12,183	**91,220**	**263,500**	301,375	— 5	1,171
Public buildings, residential	434	3,497	358	....	4,770	1,880	**10,939**	**39,960**	186,335	—77	1,290
Other public buildings	9,228	41,501	49,307	21,297	22,116	26,636	**170,085**	**385,411**	414,497	+ 1	3,257
Unclassified	5,422	3,514	8,197	688	15,984	3,943	**37,748**	**158,275**	223,877	—23	2,961
Total public	**20,812**	**78,679**	**91,408**	**49,856**	**98,301**	**67,611**	**406,667**	**1,129,749**	**1,519,114***	**—19**	**13,404**
Federal government (included in above classifications)	5,448	4,247	14,301	1,454	19,425	11,989	**56,864**	**206,611**	407,479	—45	4,387
Private											
Bridges	....	....	....	....	....	....	....	**110**	4,150	—97	....
Industrial buildings	1,312	14,958	11,374	34,160	24,672	17,270	**103,746**	**316,468**	1,046,855	—67	6,594
Mass housing	2,450	160,996	18,719	78,847	44,424	13,094	**318,530**	**724,570**	1,063,871	—26	57,209
Commercial buildings	4,701	13,610	4,692	30,023	22,538	12,280	**87,874**	**247,774**	224,069	+20	1,100
Unclassified	812	2,200	6,302	1,871	4,871	764	**16,820**	**47,887**	185,460	—72	7,242
Total private	**9,275**	**191,764**	**41,087**	**144,901**	**96,535**	**43,408**	**526,970**	**1,336,809**	**2,524,405**	**—43**	**72,145**
Total Engineering Construction:											
March, 1954 — 4 weeks	**30,087**	**270,413**	**132,495**	**194,757**	**194,836**	**111,019**	**933,637**	....	....	....	**85,549**
February, 1954 — 4 weeks	44,427	184,868	173,229	145,868	159,048	59,161	**766,601**	....	....	....	64,233
March, 1953 — 4 weeks	34,323	195,854	242,951	173,977*	313,125	173,748	**1,133,978***		....	....	69,349
Three Months — 1954	**110,858**	**678,258**	**396,720**	**537,845**	**483,729**	**259,157**	....	**2,466,558**	....	**—34**	**225,681**
Three Months — 1953	158,697	783,961	663,238	1,094,881*	830,676	512,066	....	....	4,043,519*	....	205,585
Change '53 to '54 (Avg. Wk.)	—11	—6	—35	—47	—37	—45	....	....	....	....	+19

* Revised: $66,070,000 for Mackinac Bridge contract removed.

Wall Street expects good market for 1954's huge turnpike issues

During the next few weeks, investors will be asked to buy about at least a half-billion dollars worth of turnpike revenue bond issues. The manner in which these huge issues are received by the market will have a lot to do with plans for about $1.1 billion more of turnpike, bridge, and tunnel revenue bond financing scheduled for 1954. Not all of this $1.6 billion will be spent for construction, since sizable sums will be required to pay interest on the bonds until projects are completed and revenues start coming in. But no matter how you look at it, it means a lot of money for construction.

That's why construction men this week were watching how underwriters bid on the $233-million issue offered by the Pennsylvania Turnpike Commission. A nationwide syndicate of more than 350 bond dealers is expected to buy the bonds. This money will be used to build a 110-mi extension of the turnpike into the northeastern part of the state, and the Commission's share of a bridge across the Delaware River, linking the Pennsylvania and New Jersey Turnpikes. When this bridge is completed in mid-1956 the last link will have been forged in a chain of superhighways stretching from Maine to Chicago, Illinois.

• Sell-out predicted—The talk around Wall Street is that the Pennsylvania issue will go over with a bang. It is expected to be priced to yield investors somewhere between 3.15% and 3.25%, which means that the net interest cost to the turnpike authority will be somewhat higher than that. Such yield is comparable to that which investors can get on medium-grade corporate bonds—and it is tax-exempt.

This means that an investor subject to the 52% corporate tax rate, such as a commercial bank or a property insurance company, would get about the same return as from a taxable bond yielding about 6.70%. For individuals in the upper brackets, the equivalent taxable yield could be much higher than 6.70%.

Why, then, are big revenue bond issues like this one sold at such high rates? The reason is that since such issues usually are not guaranteed by state or local governments, many corporate and individual investors are leery of buying them. So they have to carry an interest rate that will appeal to long-term investors who are not interested in tax-exempt securities. Life insurance companies and pension funds, who are largely or completely exempt from federal income tax, must provide much of the buying support for such big issues.

Unless the federal government gets into the act by offering a long-term bond issue later this year, toll road authorities and other local government agencies will have a fairly clear field in selling to long-term investors. So far this year, ENR's scorecard of new corporate securities sold to finance construction shows $758 million, compared with about $791 million last year. Municipal bonds sold for construction so far this year are $973 million, compared with $1,052 million in the same period last year.

This reduction in the volume of available new securities puts the heat on long-term investors, who are looking for ways to keep their money working. The fact that bank loans have dropped off substantially this year also puts pressure on commercial banks to buy short-term and intermediate-term municipal bonds.

• Big financing ahead—What does all this mean? It means a favorable reception for the huge volume of turnpike issues coming along later this year and plenty of work for highway engineers and contractors.

Next week, for instance, the New Jersey Turnpike Authority is expected to borrow $27 million to finance its share of the bridge connection with the Pennsylvania Turnpike. Howard, Needles, Tammen, & Bergendoff are general engineering consultants on this job, and Pittsburgh engineer George S. Richardson, has been selected for design and construction supervision of the bridge.

Then on May 4 the Massachusetts Turnpike Authority is expected to borrow $240 million to build a turnpike from Boston to the western edge of the state. Howard, Needles, Tammen & Bergendoff are also consulting engineers for this project, while De Leuw, Cather & Co., and Coverdale & Colpitts made independent traffic studies.

Also pending in the near future is the first block of a $398-million issue to finance the Connecticut Expressway. It's expected that from $100 million to $130 million will be sold

(Continued on page 130)

Highway bid prices dip 1.6% in last quarter of '53

Bureau of Public Roads composite mile price index, 1925-'29=100

	1953		Annual average	
	Fourth quarter	Third quarter	1953	1952
Composite	**156.9**	**159.4**	**160.2**	**162.5**
Excavation, common	102.3	105.1	108.6	114.2
Pavement, concrete	169.5	171.8	172.0	171.3
Structures	245.0	247.6	243.8	247.8
Quantity and bid prices used				
Excavation common, 17,491 cu yd	$ 0.36	$ 0.37	$ 0.38	$ 0.40
Pavement, concrete, 3,726 sq yd	3.76	3.81	3.82	3.80
Structures:				
Reinforcing steel, 16,000 lb	0.123	0.123	0.122	0.124
Structural steel, 4,325 lb	0.175	0.196	0.186	0.186
Structural concrete, 68 cu yd	54.480	54.070	53.530	54.500

As expected, highway bid prices resumed their decline in the fourth quarter of 1953, after having firmed a little in the third quarter (table, above).

The Bureau of Public Roads index dropped 1.6% in the last quarter, to 156.9, based on 1925-1929 = 100. This is the lowest point reached by the BPR index since the last quarter of 1951.

Average bid prices for all major components of this index—excavation pavement, and structures—shared the decline. Excavation bid prices were off 2.7% to the lowest level since the third quarter of 1950. Pavement and structures prices were more stable. Pavement prices dropped 1.3%, which is still above the level of the second quarter of 1953. The structures index was down 1.1%, as a sharp 11% drop in structural steel prices offset an 0.8% rise in structural concrete. Average prices of reinforcing steel were unchanged.

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soon to get work started. The rest of the financing may come in two or three more blocks in 1955 and 1956. Amman & Whitney were consulting engineers, and Coverdale & Colpitts prepared the traffic estimate.

• **More financing**—Other turnpike issues scheduled to be sold before long are: $62 million for the Florida Turnpike, running north from Miami to Ft. Pierce; two $125-million blocks of state-guaranteed New York Thruway bonds, one by summer, one in the fall. The California Toll Bridge Authority probably will borrow $235 million this summer to build another bridge crossing San Francisco Bay.

The Kansas Turnpike Authority expects to borrow from $140 million to $175 million by fall for a 234-mi turnpike. The Oklahoma Turnpike Authority plans to build a connecting toll road, and is expected to finance it with a $175-million bond issue this fall. The Texas Highway Authority plans to sell $100 million for a toll road. The Maryland State Commission will borrow $70 million within a few months for the Baltimore Tunnel. Virginia plans an $81-million issue for a bridge and tunnel crossing at Hampton Roads.

This may not be the peak year for toll road construction. Although some experienced observers believe (ENR Jan. 7, p. 28) that toll roads will not go above 3,000 or 4,000 miles unless some form of federal subsidy is provided, others are much more bullish.

Last week, for instance, Charles L. Dearing, deputy undersecretary for transportation in the Commerce Department, said his agency's studies indicate that 8,000 additional miles of toll roads are "feasible." At present, about 840 miles of toll roads are in service, with about 1,081 miles under construction, and about 3,000 more miles authorized. About 3,000 more miles have been proposed. Dearing believes that toll roads should support themselves without federal aid.

Higher fir prices push cost indexes to new high

Price increases in Douglas fir lumber have brought ENR's cost indexes up slightly to a new high.

The Construction Cost Index for April is up 0.2% to a record level of 615.36. The Building Cost Index is also 0.2% above March, at a new high of 437.94. Both indexes are based on 1913 = 100. The Construction Cost Index is 4.3% higher than a year ago, while the Building Cost Index is up 2.7%.

There were price boosts on fir 2x4s in five cities, but otherwise the price and wage picture has changed very little. Seattle has boosted cement by 20 cents per bbl., and San Francisco has boosted it 8 cents. There were small reductions in two cities in Southern pine 2x4s.

• **Prices firm**—This year's slow start in contract awards has not caused any general softening in materials prices, according to a 20-city survey by ENR's Business News Department. There is little evidence of disguised price reductions, such as higher discounts. However, higher trade-in allowances, bigger discounts, or easier terms on equipment sales are reported in a few cities.

• **Here are the highlights:**

Atlanta reports higher trade-ins and discounts on equipment.

Boston reports some increases in discounts on equipment.

Kansas City business is "too good" for any price cuts.

San Francisco reports that some materials suppliers, particularly lumbermen, are offering easier credit terms.

Seattle reports price trend is up.

Business briefs . . .

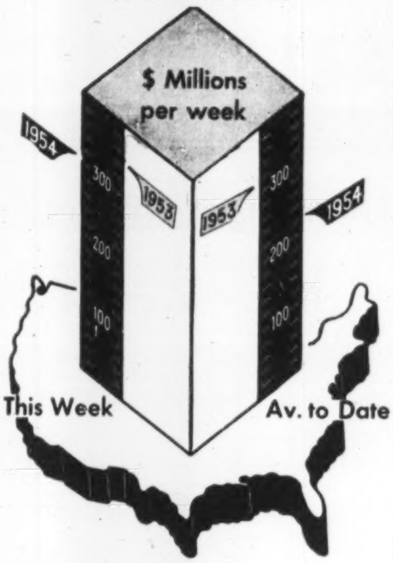
• **Utility cuts capital spending**—American Gas & Electric Co. will invest $95 million in expansion this year, compared with $137 million last year. President Philip Sporn predicts that this will be a "year of breath-catching" in the utility industry, but that the long-term annual rate of growth of close to 7% should reassert itself by 1955.

• **MC&S acquisition** of Newport Steel Corp. has been completed, reports Merritt-Chapman & Scott Corp.'s president, Louis E. Wolfson. The actual purchase was accomplished in February. By now, holders of about 88% of Newport stock have accepted the MC&S offer of one share of common for each 2.1 shares of Newport common. Wolfson has been elected president and board chairman of Newport.

• **One-for-one mortgage buying** by the Federal National Mortgage Assn. in February totaled $50 million, according to FNMA president J. S. Baughman. Originally Fanny Mae was authorized last summer to sell $500 million of mortgages in its portfolio. Until the end of February it had sold or contracted to sell all but $34 million.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 14 wks 1954	Cumulative 14 wks 1953	% chge
Federal	$24.1	$247.6	$430.8	—43
State and municipal	105.8	1,142.7	1,271.9	—10
Total pub.	129.9	1,390.3	1,702.7	—18
Total priv.	184.3	1,720.0	2,682.9	—36
U. S. total	**$314.2**	**$3,110.3**	**$4,385.6**	**—29**

Contracts by type of work

Waterworks	$5.5	$52.4	$66.8	—22
Sewerage	10.2	87.4	96.8	—10
Bridges	4.6	114.1	159.7	—29
Highways	50.0	370.6	377.2	—2
Earthwork, waterways	2.9	73.2	95.3	—23
Buildings:				
Public, excl. hsg.	30.6	446.8	455.5	—2
Housg., pub.	1.9	49.2	214.6	—77
Housg., priv.	128.3	954.9	1,128.9	—15
Commercial	32.3	300.2	261.6	+15
Industrial	17.2	406.4	1,086.9	—63
Unclassified	30.7	255.1	442.3	—42
Total	**$314.2**	**$3,110.3**	**$4,385.6**	**—29**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, 300,000.

New capital for construction

(millions of dollars)	Week of Apr. 8 1954	Cumulative 13 Wks 1954	% chge 1953-54
Corporate securities	$47.1	$757.9	—4
State and municipal:			
Excluding housing	93.6	940.2	—3
Housing	...	32.9	—76
Federal loans	2.7	26.8	—17
Federal aid	...	...	...
Total non-federal	**$143.4**	**$1,757.8**	**—7**
Federal appro.:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	**$143.4**	**$1,757.8**	**—7**

ENR indexes		Base years = 100 1913	1926	1949
Constr.	**Apr '54**	**615.36**	**295.80**	**129.00**
cost	Mar '54	613.99	295.14	128.71
Bldg.	**Apr '54**	**437.94**	**236.74**	**124.49**
cost	Mar '54	437.17	236.32	124.27
Volume	**Mar '54**	**426**	**173**	**123**
	Feb '54	345	140	100

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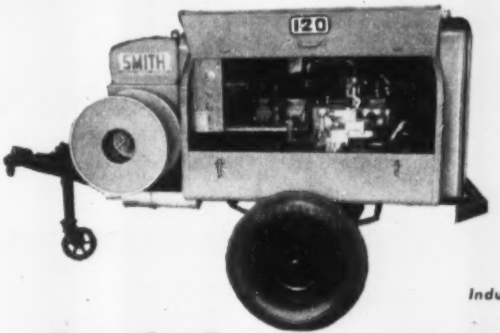

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OFFICIAL PROPOSALS

Bids: April 22, 1954

Soil Explorations and Foundation Investigation

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Standard Time, on April 22, 1954 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE LAKE ONONDAGA WEST SHORE DEVELOPMENT AND STATE FAIR BLVD, LIBERTY ST. TO ROUTE 48, CITY OF SYRACUSE AND TOWNSHIP OF GEDDES, ONONDAGA COUNTY WHICH CONSTITUTES CONTRACT NO. SPEC. SM-65

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany 1, New York

(b) Mr. William Robinson, District Engineer, 301 East Water Street, Syracuse, New York

(c) Mr. Charles Schaefer, Department of Public Works, 270 Broadway, New York City, New York.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $18,300.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $915.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. Tallamy
SUPERINTENDENT OF
PUBLIC WORKS

Bids: April 16, 1954

Grading and Drainage

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
Section 2—Portland to Augusta
(Augusta Extension)

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACTS NO. 211, NO. 211A and NO. 211B
GRADING AND DRAINAGE

at the offices of the Authority, 17 Bishop Street, Portland, Maine until 10:00 A.M., Eastern Standard Time, on April 16, 1954 at which time and place the Proposals will be publicly opened and read.

The work will be let either (a) under a single contract, Contract No. 211, which extends from the Cobbosseecontee River in the City of Gardiner near Mile 96 to a point in the City of Augusta near Mile 106, or (b) under two separate contracts, Contract No. 211A which extends from the Cobbosseecontee River in the City of Gardiner near Mile 96 to Northern Avenue in the Town of Farmingdale near Mile 102, and Contract No. 211B which extends from Northern Avenue in the Town of Farmingdale near Mile 102 to a point in the City of Augusta near Mile 106.

The principal items of work for Contracts No. 211A, 211B and 211 include:

	Contract No. 211A	Contract No. 211B	Contract No. 211
Clearing, Acres..	62	43	105
Excavation-Earth, Cubic Yards..	375,867	333,711	709,578
Excavation-Rock, Cubic Yards..	46,392	93,964	140,356
Borrow, Cubic Yards	376,533	352,597	729,130
Pipe. Linear Feet	12,951	11,332	24,283
Inlets, Each	71	44	115
Concrete, Cubic Yards	31	334	365
Crushing Rock, Tons	0	188,000	188,000

Plans and contract documents may be examined by prospective bidders during regular office hours at the offices of the Authority and at the offices of Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y. The plans and contract documents and sets of cross-sections for each Contract may be obtained from the Authority 17 Bishop Street, Portland, Maine, upon payment of the following amounts for each set.

	Plans and Contract Documents	Cross-Sections
Contract No. 211	$35.00	$50.00
Contract No. 211A	$20.00	$30.00
Contract No. 211B	$20.00	$30.00

The plans and contract documents and sets of cross-sections need not be returned, and payments will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be accompanied by a certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than five per cent (5%) of the Total Amount in the Proposal but not less than $500.00 nor more than $200,000.00.

If a Bidder submits a Proposal for Contract No. 211, as well as a Proposal for Contract No. 211A and/or Contract No. 211B, one check based on the Total Amount in the Proposal for Contract No. 211 will be sufficient.

Proposals must be made upon the Proposal forms furnished separately by the Authority with the contract documents and must be enclosed in the sealed special addressed envelopes provided therefor bearing the name and address of the bidder and the number of the Contract on the outside.

Before the award of the Contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work within the time required and to the satisfaction of the Authority.

The Bidder, to whom a Contract is awarded, will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, for a sum not less than the Total Amount of the Proposal.

The Authority reserves the unqualified right to reject all Proposals or to accept that Proposal which in its sole judgment will under all circumstances serve its best interests. The Contract will be awarded or Proposals rejected within thirty days after the date of opening Proposals, except that in the event of default by a successful bidder the Authority reserves the right to accept the Proposal of any other bidder within twenty days after such default.

MAINE TURNPIKE AUTHORITY
Paul C. Thurston, Chairman
Portland, Maine
March 29, 1954

Bids: April 21, 1954

Construction of Bridges

Field bids for the construction of two steel stringer concrete deck type bridges will be received by the City of Stamford, Conn. until 2 P. M. eastern standard time Wednesday, April 21st 1954 at the office of Purchasing Agent, City Hall, Stamford, Conn. Drawings and specifications may be obtained (no mail requests) from the Office of Purchasing Agent, City Hall, Stamford, Conn. upon a deposit of $25 for each set.

City of Stamford, Conn.
Frank N. Benevelli
Purchasing Agent.

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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OFFICIAL PROPOSALS

RATE: **The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.**

CLOSING DATE: **Friday 10:30 A.M. for issue dated the following Thursday.**

SEND COPY TO: **Official Proposal Division,**
Engineering News-Record
330 West 42nd Street
New York 36, N. Y.

Bids: April 22, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Canal Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 22nd day of April 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No:	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany, N. Y.						
Washington	FARC 54-9	Hudson Falls Village: Main Street, SH 9313 Hudson Falls Village: Boulevard & La Crosse Street, SH 1638 Proj. F-391(9), S-426(1), F-413(5)	1.42	Asp. Conc. Opt.	$4,000 Plans $10	$70,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica, N. Y.						
Madison and Chenango	FARC 54-17	New Berlin–Leonardsville Pt. 1, SH 1731 New Berlin–Leonardsville Pt. 2, Leonardsville–Bridgewater Pt. 2, SH 1824 Proj. F-1049(3)	6.61	Asp. Conc. Opt.	$25,000 Plans $10	465,000
DISTRICT No. 4, E. G. H. YOUNGMAN, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	FAC 54-4	Rochester City: Inner Loop (Sta. 241+00 to Main Street West, Court Street Connection, Fitzhugh Street South to Sta. 241+00) Proj. U-231(4), U-1089(4)	0.53	Demolition and Misc. Work	$4,000 Plans $10	72,000
DISTRICT No. 5, C. R. WATERS, District Engineer, 65 Court Street, Buffalo, N. Y.						
Erie	FARC 54-50	Southwestern Boulevard, SH 9269 Proj. F-1079(3)	6.30	Asp. Conc. Opt. = 6.25 Mi. Misc. Work = 0.05 Mi.	$45,000 Plans $15	830,000
Erie	FARC 54-56	Holland-Yorkshire Pt. 2, SH 8086 Proj. F-113(4)	3.73	Asp. Conc. Opt. = 3.72 Mi. Misc. Work = 0.01 Mi.	$16,000 Plans $10	284,000
Niagara	M 54-2	Barge Canal Bridge E-233 Main St.: Lockport	0.07	Repair & Resurface Bridge Floor	$5,900 Plans $10	105,660
DISTRICT No. 8, J. S. BIXBY, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Columbia	FARC 54-54	Nevis–Blue Store, SH 589 Proj. F-322(12)	2.59	Asp. Conc. Opt.	$9,400 Plans $10	187,000
Columbia	FARC 54-55	North Hillsdale–Austerlitz, SH 8234 Spencertown–Austerlitz, SH 5629 Proj. F-337(4)	3.39	Asp. Conc. Opt	$10,000 Plans $10	182,000
Putnam	FARC 54-58	Fishkill–Peekshill Pt. 2, SH 5387 Peekskill–Fishkill Pt. 3, SH 5156 Proj. F-394(11)	4.28	Asp. Concrete Opt.	$19,000 Plans $10	344,000
Rockland	FASS 54-7	Access Road: Pearl River–Palisades Interstate Parkway Convent Road–Pearl River Proj. S-95(2)	1.54	Asp. Concrete Opt. Comp. I-Beam Br. 82′	$17,000 Plans $10	301,000
Rockland	PIP 54-1 RC 54-51	Palisades Interstate Parkway (Sect. 2) State Line–Orangeburg, SH 728	2.70	Grading & Structs. = 2.40 Mi. 8″ Cem. Conc. Pavt. Var. Wide = 0.30 Mi. 5 Gr. Seps. Rigid Frames 46.9′, 151.2′, 136′, 105′ & 128′ 1 Gr. Sep. R. C. Arches 109′ 2 Brs. R. C. Closed Boxes 22.5′ & 56′	$225,000 Plans $100	3,759,000
Ulster	FARC 54-57	Pine Bush–Ellenville Pt. 3, SH 8441 Project F-543(8)	5.72	Asp. Concrete Opt.	$21,000 Plans $10	386,000
DISTRICT No. 9, F. W. DONOVAN, District Engineer, 71 Frederick St., Binghamton, N. Y.						
Broome	FASH 54-7 FASH 54-8P FARC 54-52	Johnson City: Floral Avenue; Johnson City: Route 17 Conn. FASH 52-2; Riverside Drive, SH 444 Riverside Drive-Binghamton, SH 5377 Proj. U-1092(4)	(0.67) (Acc.) 1.14 (Hy.)	Asp. Conc. Type 2-A	$40,000 Plans $15	692,000
Otsego	FASSH 54-4	Roseboom–Janesville Pt. 1 Proj. S-412(1)	8.04	Bit. Mac. Pen. Meth. 2 Brs. Comp. I-Beams 65′ & 54′	$55,000 Plans $25	967,000
Otsego	FASSH 54-6	Kelsey Corners–Oaksville Proj. S-413(1)	6.64	Bit. Mac. Pen. Meth. I-Beam Br. 29′	$68,000 Plans $25	1,235,000
Otsego	FARC 54-59	Springfield–East Springfield, SH 8047 East Springfield–Cherry Valley, SH 934 Cherry Valley–Sharon Springs, Sharon Springs–Canajoharie, Pt. 1, SH 8064 Proj. F-FG 65(3)	(1.53) (Acc.) (7.19) (Hy.)	Asp. Conc. Opt. Hy. Sep. Comp. I-Beam 57.6′ RR Sep. Weld. Plate Girder 155.1′	$200,000 Plans $50	3,604,000
DISTRICT No. 10, M. E. GOUL, District Engineer, Montauk Highway, Babylon, L. I., New York						
Bronx	FAMDE 54-1	Major Deegan Expressway (Cont. No. 3) Proj. U-1082(11)	1.21	9″ Cem. Conc. Pavt. 2 @ 32′—36′ Wide = 0.67 Mi. Misc. Work = 0.54 Mi. Superstructure 2570′ Conc. & Steel Viaduct	$249,000 Plans $50	4,527,000
Nassau	FARC 54-53	Jerusalem–Front Street Road, SH 437 Proj. S-428(1)	3.48	Asp. Conc. Opt. = 3.30 Mi. Misc. Work = 0.18 Mi.	$18,500 Plans $15	336,000
Nassau	FASS 54-6 SSP 54-1	Peninsula Boulevard Cont. 5 (So. St. Pkwy. Interch.) Southern State Parkway Proj. S-319(4)	1.51	Asp. Conc. Opt. = 0.43 Mi. 8″ Col. Cem. Conc. Pavt. 2 @ 24′ Var. Wide = 0.48 Mi. 8″ Cem. Conc. Pavt. (Ramps) = 0.60 Mi. Alterations and Additions to Existing Hy. Sep. Struct.	$73,000 Plans $25	1,223,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: April 27, 1954

Route 42, Section 12-A

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

ROUTE 42, SECTION 12-A, NORTH-SOUTH FREEWAY, and NEW DELAWARE RIVER BRIDGE APPROACHES & CONNECTIONS

Route 42, Section 12-A, North-South Freeway and New Delaware River Bridge Approaches and Connections, Grading, Bridges and Incidental Paving, City of Gloucester, City of Camden, and Haddon Township, Camden County. Federal Project No. U-193(1). Length of Project 1.832 miles. The principal items of work are:

Estimated: GROUP "A"

Roadway Items Common to both Alternatives 1 & 2

4,555	cu. yds.	Roadway Excavation—Earth
216,150	cu. yds.	Wet Excavation
11,760	cu. yds.	Overload Removal
2,177,420	cu. yds.	Borrow Excavation
853,240	lin. ft.	Vertical Sand Drains
125,000	cu. yds.	Channel Excavation
15,022	sq. yds.	Macadam Base Course, 7" thick
15,022	sq. yds.	Pavement Type MA-BC-2, 3" thick
3,212	lin. ft.	Corrugated Metal Culvert Pipe, various sizes
3,095	lin. ft.	10" Cast Iron Pipe, Class 150
7,406	lin. ft.	White Concrete Vertical Curb
13,450	cu. ft.	Concrete Cribbing
Lump Sum		Electrical Work

GROUP "B"

Roadway Items—Alternative 1 (Sand Drain Method)

1,028,520	cu. yds.	Borrow Excavation
489,370	lin. ft.	Vertical Sand Drains
12,640	cu. yds.	Overload Removal

GROUP "C"

Roadway Items—Alternative 2 (Wet Excavation & Backfill Method)

1,128,490	cu. yds.	Wet Excavation
1,613,240	cu. yds.	Borrow Excavation

GROUP "D"

Bridge Items Common to both Alternatives 1 & 2

6,781	lin. ft.	Cast-in-Place Concrete Piles
864	lin. ft.	Precast Concrete Piles
6,917	lin. ft.	Treated Timber Piles
46,359	lin. ft.	Untreated Timber Piles
7,320	cu. yds.	Concrete in Structures
937,000	lbs.	Reinforcement Steel in Structures
1,877,000	lbs.	Structural Steel
2,000	lin. ft.	Metal Railing

(NOTE: Bidders may submit bids on either Alternative 1 including Group A, Group B and Group D (Sand Drain Method) or Alternative 2 including Group A, Group C and Group D (Wet Excavation and Backfill Method)

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, April 27, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the Prequalification Law (R.S.52:35) and the regulations adopted by the Acting State Highway Commissioner. In this connection the attention of bidders is directed to the following excerpt from the revised regulations, which became effective March 27, 1954:

> "Class "Z" (Unlimited) involves work in excess of $6,000,000.00. A prospective bidder, so prequalified, will be notified of the intention of the New Jersey State Highway Department to undertake a project in the "Unlimited" class, and such prospective bidder shall be required to specifically prequalify to bid upon the work in question by applying for such specific classification at least twenty (20) days before the date set for the receiving of bids."

Prospective bidders are notified that this project is in the "Class 'Z' (Unlimited)" Class.

Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the revised statutes of New Jersey and supplements, and by P. L. 413, 82nd Congress, and by an agreement between the State and the Delaware River Port Authority, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 910 Broadway, Camden, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished upon the payment of a fee of Twenty-five Dollars ($25.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139; State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: April 20, 1954

Route 4 (1927) Route U. S. 9 (1953), Sec. 49 Absecon Creek Bridge and Approaches

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 4 (1927) Route U.S. 9 (1953), Section 49, Absecon Creek Bridge and Approaches, in the City of Absecon, Atlantic County. Length of project 0.152 miles. The principal items of work are:

Estimated: Roadway Items

701	cu. yds.	Roadway Excavation—Earth
1,500	cu. yds.	Wet Excavation
4,347	cu. yds.	Borrow Excavation
1,533	sq. yds.	Gravel Shoulder, 8" thick
1,567	sq. yds.	Macadam Base Course, 5" thick
1,498	sq. yds.	Pavement Type MA-BC-2, 3" thick

Bridge Items

1,250	cu. yds.	Concrete in Structures
54,740	lbs.	Reinforcement Steel in Structures
2,670	lin. ft.	Timber Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, April 20, 1954, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: April 30, 1954

Construction of Hangar

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
HANGAR NO. 11
CONTRACT NYA-363.002

Sealed proposals for the construction of Hangar No. 11 at New York International Airport, including paving and utilities therefor, will be received at the office of the Director of Aviation of The Port of New York Authority, Room 1539, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on the afternoon of Friday, April 30, 1954, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief, Aviation Planning Division of the Authority, Room 1572, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Chief, Aviation Planning Division, who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

OFFICIAL PROPOSALS

Bids: April 27, 1954

Excavation for Administration Building

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL THIRD TUBE
CONTRACT LT-160.045

Sealed proposals for the excavation for the new administration building to be constructed for the Lincoln Tunnel including the Third Tube will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, April 27, 1954, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Contract Engineer of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Contract Engineer, who will furnish the documents.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, April 8, 1954

Bids: April 22, 1954

Construction of Sewer

SEALED PROPOSALS will be received at the office of the DIRECTOR OF PUBLIC SERVICE, AKRON, OHIO, until 12:00 o'clock noon (Eastern Standard Time) Thursday, April 22, 1954 for the construction of the:

MUD RUN SANITARY TRUNK SEWER
FROM
LEESER AVENUE
TO
HAWKINS AVENUE

Drawings, specifications and blank proposals can be obtained at the office of the Engineer of the Division of Sewerage, by making a deposit of Five Dollars ($5.00). This deposit will be refunded if a proposal is submitted and the drawings are returned in good condition, within five days after the date the proposals are received.

Each proposal must contain the full name of the party or parties making the same, and all persons interested therein, and must be accompanied by a certified check in the sum of Five (5) per cent of the total bid on a solvent bank, as a guarantee that if the proposal be accepted, a contract will be entered into.

Bidders must use City of Akron printed proposal form, as none other will be accepted.

The Director of Public Service reserves the right to reject any or all bids.

The City of Akron, Ohio, through its duly authorized and constituted officials, reserves the right to reject any or all proposals and to waive informality in any proposal.

THE CITY OF AKRON, OHIO
By: Leo G. Walter, Director of Public Service

Bids: April 16, 1954

Contract No. 213
Bridges

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
Section 2—Portland to Augusta
(Augusta Extension)

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACT NO. 213
BRIDGES

at the offices of the Authority, 17 Bishop Street, Portland, Maine until 10:00 A.M., Eastern Standard Time, on April 16, 1954 at which time and place the Proposals will be publicly opened and read.

The work included under this Contract consists of the construction of nine bridges, exclusive of the fabrication and delivery FOB cars at Portland, Maine, of the steel superstructures therefor but including the erection thereof, along the route of the Turnpike Extension, between Mile 53 in the Town of Falmouth and Mile 62 in the Town of Gray.

The principal items of work will include:

Structural Excavation-Earth, Cubic Yards	7,369
Reinforcing Steel Bars, Pounds	829,186
Concrete in Piers and Abutments, Cubic Yards	4,276
Concrete in Superstructures, Cubic Yards	1,827
Driving Steel H-Piles, Linear Feet	13,410
Cast-In-Place Concrete Piles, Linear Feet	13,210
Erection of Steel Structures, Pounds	1,427,728
Metal Handrail on Concrete Parapets, Linear Feet	3,336

Plans and Contract documents may be examined by prospective bidders during regular office hours at the offices of the Authority at the above address and at the offices of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., and may be obtained from the Authority, 17 Bishop Street, Portland, Maine, upon payment of Twenty-Five Dollars ($25.00) for each set which will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Proposals must be accompanied by a certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than five per cent (5%) of the Total Amount in the Proposal but not less than $500.00 nor more than $200,000.00.

Proposals must be made upon the Proposal forms furnished separately by the Authority with the contract documents and must ben enclosed in the sealed special addressed envelopes provided therefor bearing the name and address of the bidder and the number of the Contract on the outside.

Before the award of the Contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work within the time required and to the satisfaction of the Authority.

The Bidder, to whom a Contract is awarded, will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, for a sum not less than the Total Amount of the Proposal.

The Authority reserves the unqualified right to reject all Proposals or to accept that Proposal which in its sole judgment will under all circumstances serve its best interests. The Contract will be awarded or Proposals rejected within thirty days after the date of opening Proposals, except that in the event of default by a successful bidder the Authority reserves the right to accept the Proposal of any other bidder within twenty days after such default.

MAINE TURNPIKE AUTHORITY
Paul C. Thurston, Chairman
Portland, Maine
March 29, 1954

Bids: May 6, 1954

Construction of Highway Bridge

INVITATION TO TENDER

The City of Clinton Bridge Commission invites the proposals of prequalified bidders on a total of seven (7) contracts for the construction complete of a two-lane highway bridge and its approaches over the Mississippi River between the City of Clinton, Iowa and East Clinton, Illinois. The contracts are listed as follows:

No. 1	Earthwork
No. 2	Bridge Substructure
No. 3	Bridge Superstructure
No. 4	Approach Roadway Paving
No. 5	Administration Buildings and Toll Houses
No. 6	Electrical Wiring and Electrical Equipment
No. 7	Illinois Approach Overpasses

Complete sets of plans, specifications and contract documents for bidding purposes may be secured from Mr. Fred G. Hansen, Secretary, City of Clinton Bridge Commission, P. O. Box 70, Clinton, Iowa at the following prices:

Contract No. 1	$20.00	Contract No. 4	$20.00
Contract No. 2	$35.00	Contract No. 5	$20,00
Contract No. 3	$35.00	Contract No. 6	$20.00
Contract No. 7	$20.00		

Plans and documents for all seven contracts may be secured at a price of $100.00.

No refunds will be made upon plans and documents returned.

Proposals shall be submitted in the double pocket envelope provided and on the forms provided in the "Contractor's Proposal" which is part of a bound book containing all of the contract documents and the specifications. Two copies of this book will be furnished to each potential bidder. Each proposal shall be accompanied by a copy of this Addendum No. 1 (and any further addenda which may be issued during the advertising period) bearing signature of acknowledgement and acceptance by the bidder.

Each proposal shall be accompanied by evidence of qualification of the bidder by either the Iowa Highway Commission or the Illinois Division of Highways, and shall also be accompanied by a certified check made payable to the order of the City of Clinton Bridge Commission in the amount listed below for each Contract on which a proposal is made:

Contract No. 1	$30,000
Contract No. 2	$130,000
Contract No. 3	$150,000
Contract No. 4	$15,000
Contract No. 5	$5,000
Contract No. 6	$2,000
Contract No. 7	$15,000

Proposals will be received by the City of Clinton Bridge Commission, P. O. Box 70, Clinton, Iowa until 2:00 p. m. Central Standard Time, May 6, 1954, at which time the bids will be publicly opened and read in the municipal courtroom at the County Court House, Clinton, Iowa.

The proposal provides for the return of certified checks of all bidders within ten days, except those of the lowest satisfactory bidder on each contract.

The City of Clinton Bridge Commission reserves the right to delay final acceptance of the lowest satisfactory bids for a period of sixty days, after the receiving date, final execution being subject to the successful sale of an issue of revenue bonds required for the completion of financing the project.

The City of Clinton Bridge Commission is a quasi-public agency created by Public Law No. 526 of the 78th Congress, as reenacted by Public Law No. 357 o fthe 79th Congress and further extended by Public Law No. 220 of the 81st Congress.

The Commission is operating with the advice and financial aid of the:

Iowa Highway Commission
Illinois Division of Highways
U. S. Bureau of Public Roads

THE CITY OF CLINTON BRIDGE COMMISSION
Mark Morris, Chairman
Fred G. Hansen, Secretary

Bids: April 15, 1954

Contract No. 38

WEST VIRGINIA TURNPIKE COMMISSION
ADVERTISEMENT FOR PROPOSALS

Sealed proposals will be received by the West Virginia Turnpike Commission for:

The work to be done under this Contract consists in performing the required Erecting Traffic Signs including furnishing certain materials and other incidental work. This work is located between Princeton, Mile 0, and Charleston, Mile 88, Mercer, Raleigh, Fayette and Kanawha Counties, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The Principal items of work include:

	Approximate Quantity
Type I Signs	10,500 sq. ft.
Type II Signs	300 each
Type III Signs	650 each
Illuminated Signs	32 each

Proposals will be received at the office of the West Virginia Turnpike Commission, 1343 Wilson Street, Charleston 5, West Virginia until 10:00 A.M. Eastern Standard Time, on April 15, 1954, at which time and place said proposals will be publicly opened and read.

Contract documents may be seen and may be inspected by prospective bidders during office hours, after March 25, 1954, at the office of Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and 55 Liberty Street, New York 5, N. Y.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton
Chairman

CHIEF DRAFTSMAN

To assume complete responsibility of Drafting Room for Southwestern steel fabricator, supervising 20 to 30 workmen. In reply give full education, experience, background, age and salary expected.

P-2244, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

GENERAL SUPERINTENDENT or Project Manager. A minimum of 15 to 20 years experience in the operation and maintenance of heavy cranes and draglines required. Knowledge of all other heavy construction equipment desirable. Experience should also include responsibility for costs and the ability to deal and associate with industrial executives. Work involves the directing of operations on the site of a steel mill located near Calcutta, India. Address all replies to Box P-2187, Engineering News-Record giving complete personal information: All details of work experience; at least 5 references as to character and ability and the terms of employment and salary arrangements required. P-2187, Engineering News-Record.

GRAVEL PLANT Superintendent for portable and stationary plant in Michigan and Indiana. State exact experience and wages. P-1810, Engineering News-Record.

WANTED BY Central Pennsylvania's fastest growing Reinforcing Fabricator, an experienced graduate Engineer for quantity take-off and detailing. Will expand shortly into prestressed concrete work. Wonderful opportunity to advance. Salary and bonus arrangement. Brocker Mfg. & Supply Co., York, Pa.

CONSULTING ENGINEERING firm in deep south now entering industrial design and construction field requires engineer with design and organization ability. Experience required in natural gas, petroleum, petro-chemical and allied fields, or for manufacturing plants. Outline experience briefly. P-2138, Engineering News-Record.

CIVIL ENGINEER, graduate preferred, for county and township road and bridge survey design and construction, position permanent, opportunity for advancement. State schooling, experience and salary expected. P. O. Box 23, Carthage, Illinois.

ENGINEER GRADUATE, 15-20 years' design and detailing experience primarily steel and concrete bridges, capable of assuming chief draftsman's duties in small established consultant's office. Location Missouri. P-2236, Engineering News-Record.

ELECTRICAL ENGINEER, graduate preferred. Must have practical experience in the overall electrical installations of sewage disposal plants, filter plants, power plants, industrial buildings multipal housing, hospitals, schools etc. Must be experienced in bidding and purchasing, and able to assume the overall management of this department. Employment will be with Mid-west firm on a salary and profit sharing plan. All replies will be held confidential. Send resume of experience, education, personal details and reference with the first letter. Address P-2330, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

SUPERINTENDENT—COMPLETE knowledge of road construction and bituminous paving. Must be able to estimate and take charge of complete road job. Year around position with reliable construction company in Central New York. P-2292, Engineering News-Record.

WANTED: COST accountant engineer highway contractors office Eastern N. Y. Experienced man only. Send resume. P-2264 Engineering News-Record.

ENGINEER WITH selling experience with leading eastern distributor. Particularly interested in someone familiar with quarry practice. P-2270, Engineering News-Record.

DISTRICT MANAGER and Assistant District Manager thoroughly familiar with heavy construction field required for eastern territory by leading distributor. P-2271 Engineering News-Record.

ESTIMATOR-ENGINEER— Smaller growing General Contractor operating in Cleveland and Northern Ohio Area wants young experienced estimator with experience in Public Works and Eng. type structures. Please send resume and salary desired in first letter. P-2311, Engineering News-Record.

CHIEF ENGINEER

WANTED

For nationally known hydro-electric consulting engineering firm. Position offers opportunity to grow with the organization and participation in profits. Applicant must have broad experience in this specific field, and ability to organize and direct design. If you are qualified send photograph and outline of education and experience, including employers' names, your titles and duties, and references; also statement of acceptable salary range and approximate availability. Confidence will not be violated.

P-2102, Engineering News-Record
520 N. Michigan Ave., Chicago, Ill.

WANTED BY CONSULTING FIRM

Traffic Engineer
B.S. in Civil Engineering
Education in Traffic Engineering
or
B.S. in Civil Engineering
Minimum 3 years experience on
Traffic Surveys and Planning.

Send complete resume—references, salary requirements and date of availability with first letter.

P2243 Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

ENGINEER—CIVIL to take off quantities, assist in pricing, and do layout work in the field by Highway and Utility contractor in the Western New York area. Permanent position for right man. Salary and percentage.

P-2300, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT

CIVIL ENGINEERING Graduate, under 40 years, paving experience desirable, for technical, promotional, educational work in Pennsylvania. Permanent. Please give summary of education, experience, salary requirements in reply. P-2320, Engineering News-Record.

SOILS AND Foundation Engineers, two, for New York firm of consulting engineers; one with inclination for field and laboratory testing and instrumentation, to direct soil mechanics laboratory and to write reports evaluating test data; second for general soils and foundation engineering work. Send full resume. Indicate availability. P-2325, Engineering News-Record.

MECHANICAL ENGINEER, graduate preferred. Must have practical experience in installing piping, equipment, plumbing and heating in sewage disposals, filter plants, power plants, industrial buildings, multipal housing, hospitals, schools etc. Must be experienced in bidding and purchasing, and able to assume the overall management of this department. Employment will be with Mid-west firm on salary and profit sharing plan. All replies will be real confidential. Send resume of experience, education, personal details and reference with the first letter. Address P-2329, Engineering News-Record. 520 N. Michigan Ave., Chicago, Illinois.

SEWER CONSTRUCTION Foreman for disposal plant—concrete & sewer line work. Small but aggressive firm has excellent opening for man who is not afraid to handle a pick & shovel, yet has ability to plan and run a job. Right man could get percent, interest, or bonus. Now in New Jersey. Reply P-2334, Engineering News-Record.

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WANTED—SALES representative in New York City, Washington, D. C., Houston, Cleveland, Atlanta and Chicago, by new engineering and construction corporation. Sell our services on commission basis. Applicants must be able to discuss with client problems in the chemical, paper, power plant and other industries from the engineering stage through complete construction of plant. Attractive proposition for men who can qualify. Give references and resume of experience for past ten years. Reply SW-2295, Engineering News-Record.

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To assume full responsibility for maintenance and repair of all types of heavy construction equipment. This is an excellent opportunity requiring executive ability as well as technical competence. Age to 45. No traveling. Apply giving personal data, work experience and salary required.

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CONSTRUCTION SUPERINTENDENT, Twenty years experience, Civil Engineering background. Industrial and Commercial buildings. Prefer small Contractor. PW-2234, Engineering News-Record.

ENGINEER Reg. P.E. Reports, investigations. Settlement of contractors' claims, 45 years experience; design, construction. Turnpikes, tunnels, buildings, foundations, schools, etc. PW-2073, Engineering News-Record.

CIVIL ENGINEER—M.S., Reg. Calif., age 33, married, U. S. citizen. Presently employed, 6 years experience, 5 structural design, 1 administration. Desires responsible, permanent position in construction or related fields, domestic or foreign. Speaks Scandinavian languages and German. Available on 30 days notice. PW-2267, Engineering News-Record.

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(Continued on the opposite page)

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(Continued from opposite page)

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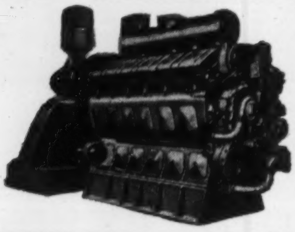

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480	Worthington	DD-8	700	360
400	Sterling	VDS-8	600	1200
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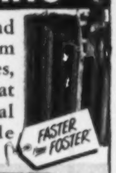

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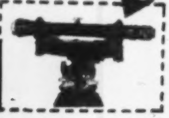

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Pictured above is a "spreader"—one of the 25 pieces of heavy road equipment constantly in use for the Garden State Road Materials, Inc., Cedar Grove, New Jersey. Although these trucks operate throughout four states, often under the severest conditions, William "Doc" Dougherty, president of the firm, reports that since using C-800 motor oil—"The rings do not stick, there is no sludge or varnish and we use less oil. C-800 motor oil is the best I have ever used."

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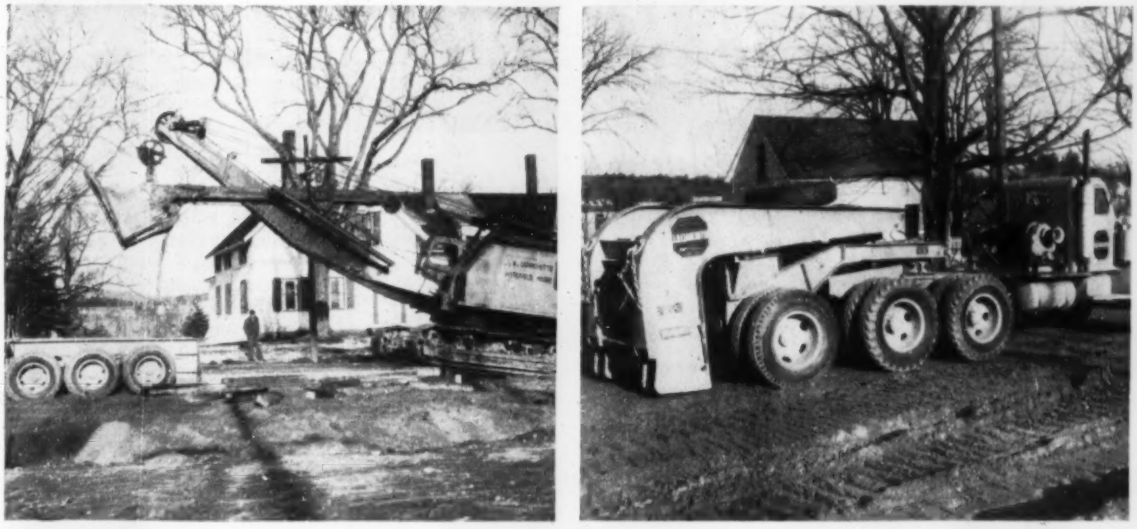
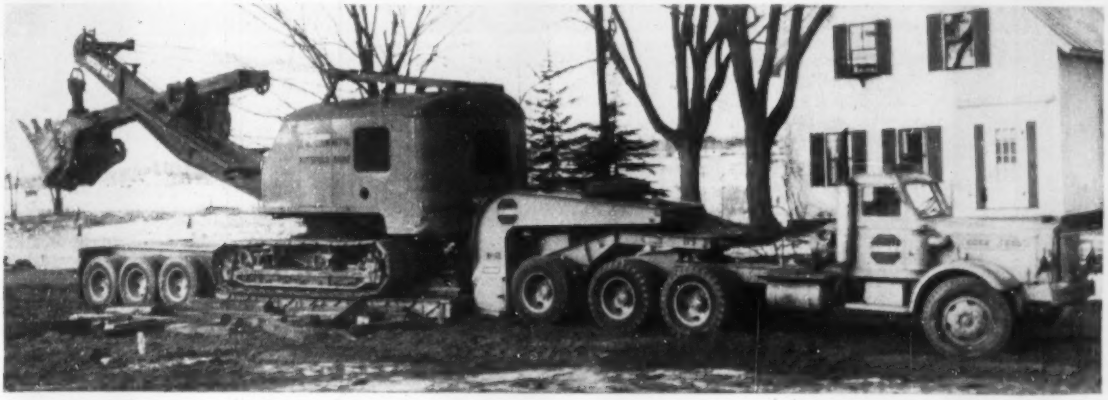


Powered detachable gooseneck helps load and adjust carrying height of . . .



Rogers' new triple-axled heavyweight haulers

Seven axles and twenty-six tires are used to distribute loads on the new Rogers triple-axled trailer units. The object—to move big loads faster, more safely and with fewer restrictions.

Loads and equipment of the size generally carried by such trailers are seldom legal because of width and length, so the primary function of this unit is to place the load over a broader portion of highways and bridges to minimize load concentration at any given point. These factors can be important in the consideration of the granting of permits, and may preclude circuitous routing around certain bridges or culverts or minimize shoring requirements.

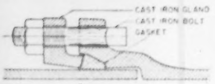
The loading pictured distributes the weight in the following manner: 20,000 lb on the front tractor axle, 24,000 lb on each of the following three axles and 25,000 lb on each of the three rear trailer axles.

The trailers are available in 40, 50 and 60-ton capacities with conventional or powered detachable goosenecks. The Power-Lift detachable gooseneck, as it is called, permits fast loading and unloading without special equipment. With the gooseneck detached, the equipment is rolled up ramps placed at the front end of the grounded trailer. With the load in place the trailer is raised to carrying height by a cable operated ram powered by the tractor mounted winch. The Power-Lift gooseneck is also useful on the road, enabling the operator to raise or lower the trailer bed to clear obstructions or slip under tight overhead clearances.

Dimensions of the trailers will vary with capacity and application. The 50-tonner illustrated above is 10 ft wide with side brackets for extension to 12 ft; deck length is 20 ft; gooseneck length 11 ft 5 in.; wheelbase 38 ft 1 in.; overall length 45 ft 9 in.

Similarly, tire sizes vary with the capacity and as in this case may be obtained to match the tractor tires. The 26 tires on the rig above are 12.00 x 24. Trailer axles are of the free oscillating type. Rogers Brothers Corp., Albion, Pa.

(New Products continued on page 146)



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M & H Mechanical Joints are made in accordance with A.S.A. standard specification A21.11, 1952, as approved by American Water Works Association, in which a thick gasket of triangular cross section is compressed by a bolted follower ring.

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NEW PRODUCTS

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The equipment is designed for capacities to 20 gpm with a 20-ft head and for use with either a 3- or 4-in. inlet and discharge fitting. Packex takes over when it is not practicable to scale down a centrifugal pump to 20 gpm since at such reduced volume, a centrifugal pump requires a screen or mechanical shredder to pass solids up to 2½ in. dia. The pneumatic ejector, however, is said to pass those solids and any others that enter the pot.

The unit has a hermetically sealed pot to eliminate odor and gas and has no bearings in the pumping unit, no stuffing boxes and no shafting to keep aligned.

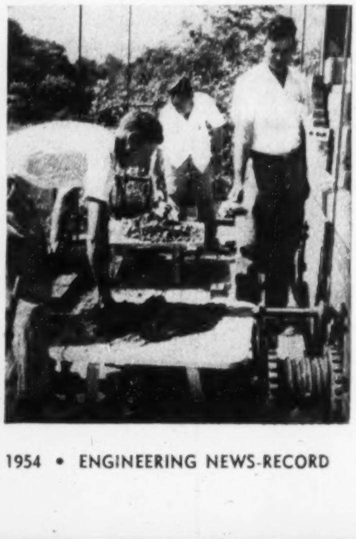
The equipment operates on standard house current and is ready for inlet and discharge connections when it leaves the factory. Yeomans Brothers Co., 1999-1 N. Ruby St., Melrose Pk., Ill.

Non-warping mortar boards have detachable legs

A new type of mortar board is said to make bricklaying up to 33% faster. The boards are made of steel and feature demountable legs that provide a comfortable working height. Further, the boards provide a smooth surface with no nail heads or warped boards.

The boards come in a standard size 32x32 in. and sell for $81.00 a doz with 12-in. legt ($7.50 ea) and $90.00 a doz with 18-in. legs. ($8.25 ea). Knickerbocker Stamping Co., Parkersburg, W. Va.

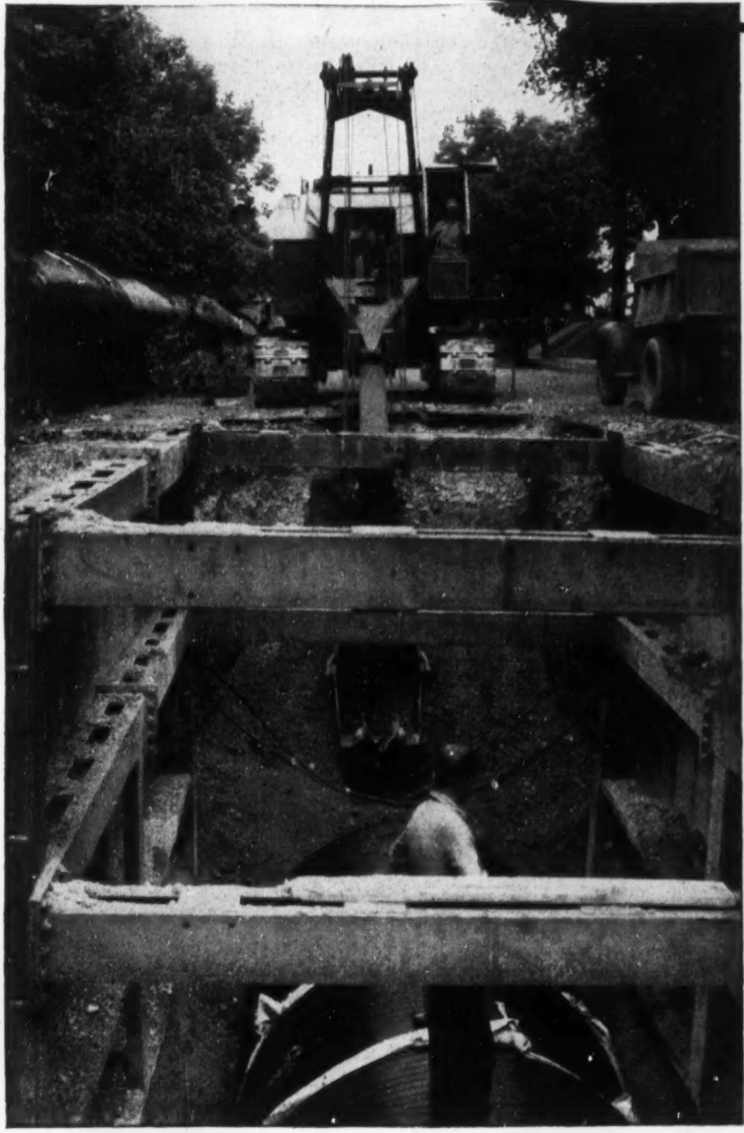
(New Products continued on page 148)



Two Good Ideas:

1 A movable steel form to take the place of trench piling.

2 A MARION 362 for dependable cost-cutting excavation work.



Haddad Construction Company of Columbus puts two good ideas to work on its sewer projects.

One is a movable steel form which prevents cave-ins while pipe is laid. Its variable width makes it adaptable to various sewer jobs. The backhoe pulls it forward like a sled as pipe is laid.

Its other good idea is the selection of a MARION 362 Backhoe to handle the excavating. Dependability, accurate and easy-operated air control, reserve power and maneuverability are some of the 362 features that please Said S. Haddad, president. The 1-3/4 cu. yd. bucket moves plenty of dirt and the 362's range handles deepest trenches with ease.

Let your nearest MARION representative show you what a versatile 362 can do on your jobs.

●

The need for protective piling is eliminated by the fabricated steel form shown in the foreground. Width of form can be varied as needed. The form is pulled along in the trench like a sled by the MARION 362, providing positive protection while pipe is lowered and fitted.

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Since 1941, when it was introduced as the first protective coating in handy tape form, TAPECOAT has proved its ability to keep vulnerable steel surfaces in "like new" condition year after year. **That's why it is specified by those who know that continuing protection is the first consideration.**

For 13 years, TAPECOAT has provided dependable protection on pipe, pipe joints, tanks, etc., above ground and under ground.

TAPECOAT comes in handy rolls in widths from 2" to 24". It's easy to apply and the coal tar provides both bond and protection at the same time.

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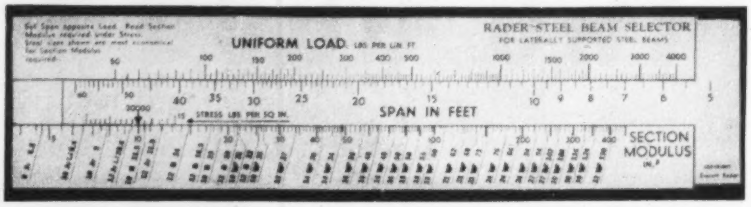
RADER STEEL BEAM SELECTOR
FOR LATERALLY SUPPORTED STEEL BEAMS
UNIFORM LOAD LBS PER LIN FT
SPAN IN FEET
STRESS LBS PER SQ IN
SECTION MODULUS

Beam selection simplified, speeded

Steel beams for light construction jobs now may be determined in a few seconds. The proper size of beam may be found by using a newly developed slide rule-type selector.

According to the manufacturer's instructions, the following factors must be determined:

1. Span length, in feet, of the beam to be designed.
2. Total uniform load, expressed in pounds per linear foot, that is to be supported.
3. Allowable fiber stress in psi. This is assumed at 20,000 for most structural purposes.

Having determined this information the span length is set on the slide rule opposite the total uniform load, and the section modulus is read under the allowable stress indication. If the beam size shown is not suitable or convenient, the user may select any beam shown on the reverse side of the selector that has a section modulus greater than that which is shown under the allowable stress.

The selector is constructed of folded, flexible plastic and comes complete with a leatherette case. Price is $4.00. EVERETT RADER CO., BOX 122E, BOWLING GREEN STA., NEW YORK 4, N. Y.

(*New Products continued on page* 150)

Dearborn rotary shreds as it cuts

A new 5-ft rotary blade mower has been designed for cutting and clearing along highway and railroad rights-of-way and around airports, parks, golf courses, etc. The manufacturer says that the machine shreds as well as cuts so that grasses are not smothered by weeds and brush. A deflector shield is mounted under the blade hood to insure even distribution of cut material. This deflector may be removed, however, when it is desirable to windrow material behind the machine. Full length runners on the lower edge of the hood prevent gouging of the soil by the blades, and a gage wheel provides a cutting height range of from 2 to 10 in. The 635-lb. cutter is raised and lowered by Ford tractor hydraulic control. Tractor & Implement Div., Ford Motor Co., Birmingham, Mich.

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82-A
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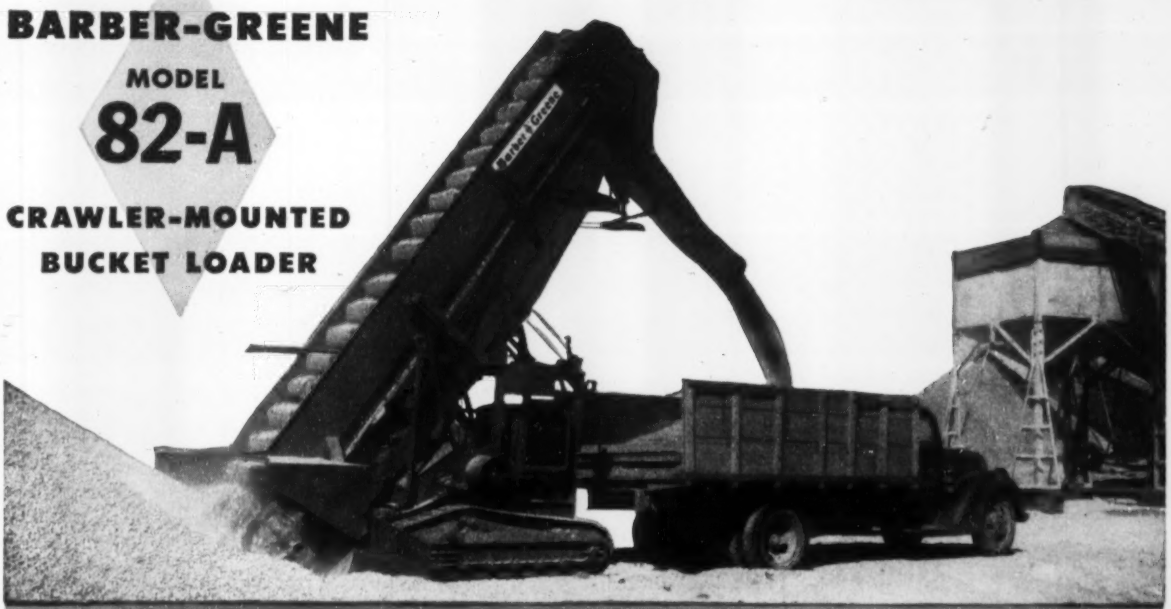

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COMPARE the constant 3 cu. yd. per min. loading of the B-G 82-A . . .

AND SEE the savings in man-hours and money possible on your loading jobs with a B-G 82-A Bucket Loader.

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Crawler-mounted, the 82-A provides positive traction in all kinds of going—on soft or muddy bases—on spots where pneumatic-tired rigs can't operate.

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INCREASE PROFITS
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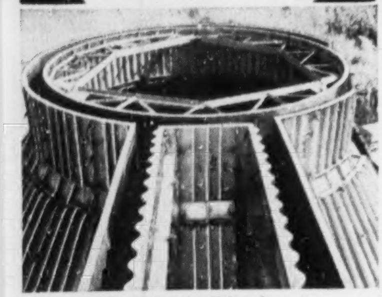

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New modular window of insulating glass

A recently developed all-weather, modular unit window reportedly enables builders to use thermopane insulating glass as economically as conventional windows and storm sash.

Marketed under the name Modernaire, the window is available in both fixed- and awning ventilator-type sash, similar in style but slightly smaller than regular panel windows. The ventilating Modernaire comes complete with roll-away bronze screen and glazed with insulating glass. Framed screens and storm windows are thereby eliminated. Like other panel-type windows, they may be stacked, used singly or in ribbons.

According to the company, the unit's distinctive features include ease of installation, newly developed weather stripping and hardware, and little maintenance.

Units are delivered ready for installation with 3¾-in. blind stops designed to fit SCR brick, masonry and frame construction. The blind stop and brick mold details are the same as on the ordinary double-hung windows.

Weather stripping is made of natural sponge rubber coated with neoprene and reinforced with steel spring.

Each ventilating unit is equipped with bronze sill locks to hold it tightly against the frame and to prevent the sash from being racked out of square. Hardware is galvanized and designed to make it possible to open the ventilators 130 deg.

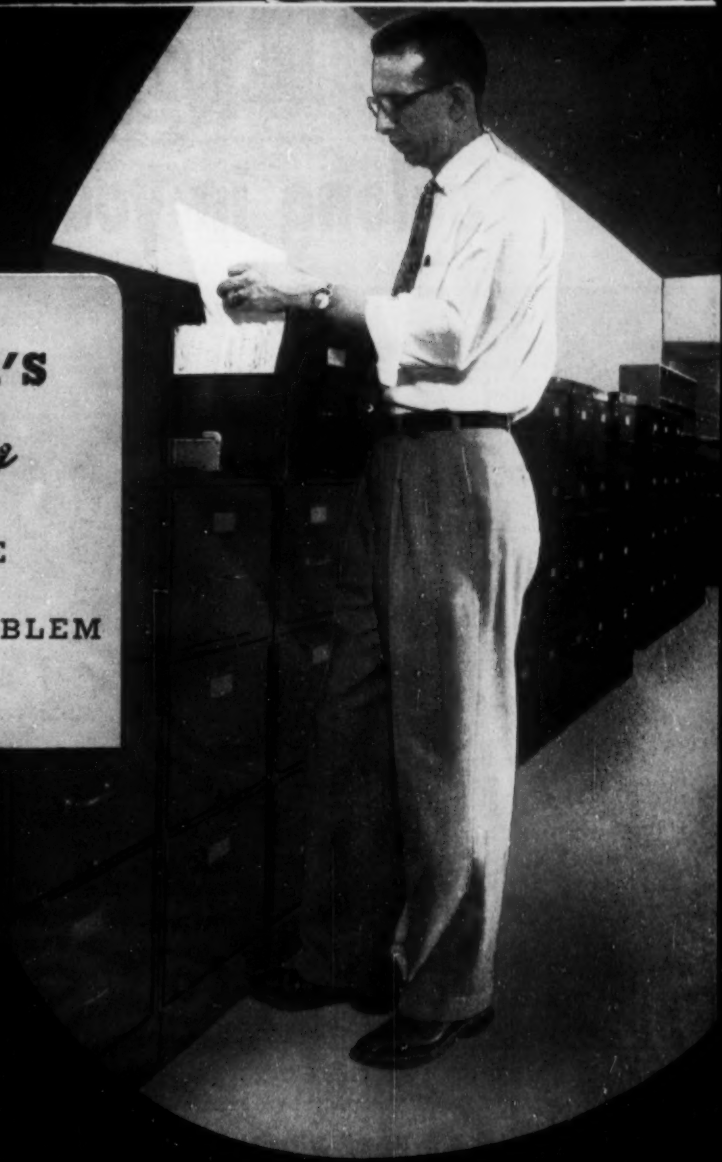
The bronze screen on each ventilating unit can be rolled up and down and locked at any point. When not in use it rolls up out of sight.

Although designed primarily for use with insulating glass, the sash may be single glazed and an interior, stainless steel channeled storm window used with it. The sash is made of toxic-treated Ponderosa pine. Builders Products, Inc., Box 374, Station D, Cleveland 27, Ohio.

New Products briefs . . .

• **Idler equipment**—Heavy-duty idler equipment is now being produced by Atlas Conveyor Co., Clintonville, Wis., in a variety of belt widths from 12 in. through 42 in. Belt idlers are available in 2½, 3½, 4 and 5-in. dia in a choice of troughing or return types and fixed, self-aligning or impact styles.

• **Concrete form clamps**—Taper Tye form clamps feature a tapered rod that enables the rods to be driven from the concrete with a light tap. Formerly threaded on both ends for attaching washers, a new type has been introduced that utilizes a fast-assembling keyplate on the small end. The rod is slotted on opposing sides of the small end. The keyplate is equipped with an inverted keyhole that slides over the rod and drops into the slots, locking into place. Tapered edges of the keyhole itself prevent binding in the slots upon removal. The new type is adjustable for 6-in. to 13-in. concrete. H. J. Krueper Co., 535 S. Clarence St., Los Angeles 33, Calif.



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FOR MOVING EARTH, ROCK, COAL AND ORE

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Working on a highway relocation job in Arkansas for contractor D. B. Hill, "Euc" Scrapers of 12 cu. yd. struck capacity spread their loads on the run. Time saved in loading, speed on the haul, and fast dumping on the fill cuts down cycle time, steps up production.

▲ A fleet of nine 15.5 yd. "Euc" Scrapers helped rush a big plant-site grading job in Kentucky to completion ahead of schedule. They maintained high hourly production because of their fast travel speed with heaped loads up to 21 cubic yards on hauls averaging 1,950 feet.

◀ Fast, easy loading with more pounds of payload than other equipment of comparable size on many competitive demonstrations has made Euclid Scrapers the first choice of contractors and an important part of their profit picture.

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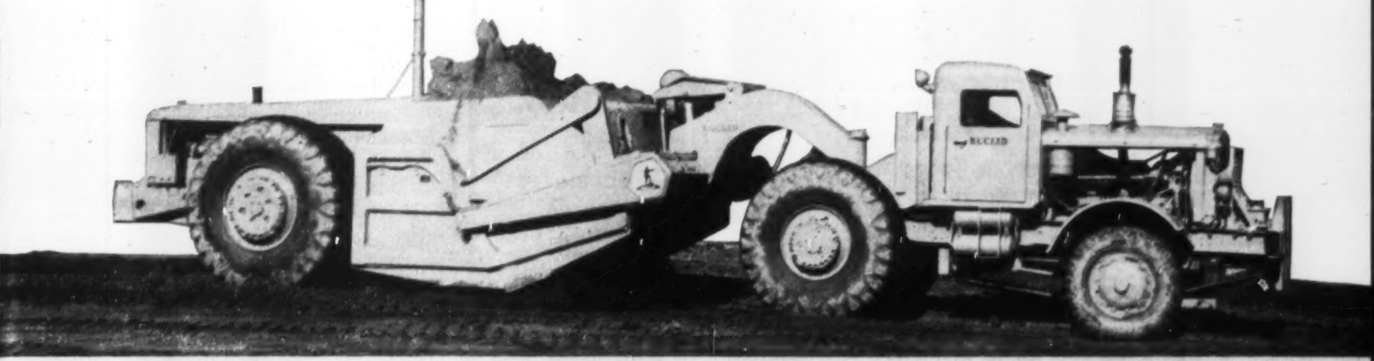
Western Contracting Corp. found the Twin-Power Scraper a versatile machine for their work on the Ohio Turnpike. On one section, carrying average loads of 23 cu. yds., a complete 4700' cycle was made in only 5.3 minutes. Top extensions increased the struck capacity to 21 cu. yds.

Only Euclid builds a Twin-Power Scraper



Before you invest in any earth moving equipment, check with your Euclid distributor and be sure to see the new scraper film "Equation for Profit".

EUCLID DIVISION

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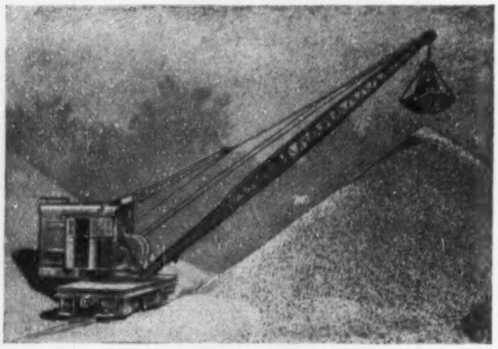
Cleveland 17, Ohio

"She's 26 years old...
and **more** rugged than ever!



Railway Crane repowered with a D-326 Cat equipped with S-N Gear Model 2265-12/3065 - 5P

thanks to **S-N reduction gears"**

says The Dolomite Products Co., Penfield, N. Y.

Repowering this Brownhoist Railway Crane with a new "Cat" engine called for a transmission gear unit that would stand up to the gruelling, rugged grind of heavy stock-piling jobs . . . provide smooth transmission of full power from engine to load with a minimum of maintenance cost. S-N heavy duty herringbone Reduction Gears with Cut-off Clutches, *meet all these requirements . . . and more!* Can be installed as original equipment, too, with all types of engines from 40 H. P. units to 775 H. P. giants. Available in a broad range of reduction ratios — 1.5:1 up to 4:1.
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PUBLICATIONS

Chain hoists—A bulletin covers the full line of recently announced P&H Chain Hoists. Printed in two colors and illustrating each type of hoist, the bulletin includes descriptions as well as condensed specifications. It covers all types of hoists from ¼-ton up to 25-ton capacity. Bulletin H-32. Harnischfeger Corp., Hoist Div., 4400 W. National Ave., Milwaukee 46, Wis.

Sash maintenance—Those concerned with sash maintenance problems should find "Complete Sash Maintenance" a useful discussion of calking, glazing, painting rusted metal, sill restoration, etc. The 16-page brochure explores such subjects as mastic glazing versus putty, how windows are installed, how sash deteriorates, how sash trouble can be diagnosed and eliminated. The Tremco Mfg. Co., 8701 Kinsman Rd., Cleveland 4, Ohio.

Air compressors—A new and comprehensive catalog introduces the Binks' complete line of new air compressors. The line now includes 27 sizes in five types. The new models include single or two-stage units, tank-mounted, in sizes from ¼ hp to 15 hp; single and two-stage units, base-mounted, from ¼ hp to 20 hp; and portable single-stage units in capacities from 2.2 cfm to 105 cfm. Compressor catalog 810. Binks Mfg. Co., 3122 Carroll Ave., Chicago 12, Ill.

Automatic filters—A new 12-page illustrated bulletin describes Staynew automatic filters designed for large air volume and high efficiency. The bulletin contains specifications, engineering and performance data covering automatic filters in a wide range of sizes. Bulletin No. 500. Dollinger Corp., 11 Center Park, Rochester 3, N. Y.

Trencher—A new bulletin describes the complete line of Cleveland trenching equipment. Inside spread of the 4-page bulletin has been arranged to permit a simple, quick comparison of the digging capacity and specifications of the Cleveland Trencher Models 92, 95, 110 and 140. Text briefly describes specific advantages, typical job applications, and special Cleveland construction features of each model. The unique Cleveland Model 80 backfiller—side crane—tamper is also treated in the spread. The Cleveland Trencher Co., 20100 St. Clair Ave., Cleveland 17, Ohio.

Porcelain panels—An 8-page brochure describes a new line of fabricated panels with porcelain enamel on steel or aluminum surfaces for exterior walls. In addition to general details and photographs of representative installations, the brochure includes several pages of architectural drawings illustrating typical details of construction. INGRAM-RICHARDSON MFG. CO., BEAVER FALLS, PA.

Transparent sheets—A new 12-page catalog describes and illustrates applications of clear cast thermoset Cocor sheets. The booklet features the properties claimed for the sheets, such as high abrasion and heat resistance, toughness and solvent resistance. Technical properties and fabrication data are included. CAST OPTICS CORP., RIVERSIDE, CONN.

Valve installations—Instructions on the proper method of installing line blind valves are contained in a new 24-page brochure. The manual is illustrated with over 34 cartoon-type drawings and a separate section of the manual is devoted to trouble shooting for faulty installation techniques along with recommended corrective procedures. While this manual deals primarily with line blind valves, the ideas may be applied to the installation of gate, globe and plug valves. HAMER OIL TOOL CO., 2919 GARDENIA AVE., LONG BEACH 6, CALIF.

Glazed tile—Construction details and estimating data for ceramic glazed structural facing tile are featured in a new 32-page full-color catalog. In addition to the detailed wall drawings (complete with unit numbers) and a special section showing light reflection valves for more than 40 different applications, the brochure incorporates 12 pages of shape drawings of both the 6T and 4D series. The center spread reproduces the colors available from the two producing plants at Minerva, Ohio and West Darlington, Pa. METROPOLITAN BRICK, INC., CANTON, OHIO.

Floor paving—Information and specifications covering the use of vitrified paving brick for industrial floors is included in a new floor paving manual. A special section supplies data on procedures for laying modern brick floors, while another provides detailed information on foundations and fillers for floors where they are subjected to continuous hard use. METROPOLITAN BRICK, INC., CANTON 2, OHIO.

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EDITORIALS

Drought and the water supply

With the drought that has plagued a considerable portion of the country in recent weeks, there have been shortages of water supply. Even worse may be the shortages that summer will bring to many areas after so dry a winter. Spring rains will relieve the situation for some places, but won't solve their basic problems.

For spring rains are no substitute for sound engineering. Droughts must be designed for, even as in the case of floods. When floods come, they must be controlled; when drought comes, it ought to be taken in stride by a good water supply just as a heavy traffic flow is absorbed by a well designed highway net.

A good design is not the whole answer, however. Rather, it supplies the logic in the case for financing a needed project. Armed with the logic of sound engineering, someone must sell the water-consuming public on the worth of water, on paying a fair price for it and on investing in the long-range and costly planning and construction that will mean water to sell whenever there's someone to buy—in spite of droughts.

For broadly speaking there is plenty of water in the United States. The trouble is that some of it is in the wrong places. In the past, sound engineering and successful selling have taken a lot of water from where it had accumulated and have moved it to where it was needed. Much more of this can and must be done. The job won't be finished until drought and water shortage cease to be synonymous in the minds of men. They are not synonymous. A drought—with due deference to the rainmakers—is an act of God; a water shortage is a failing of man.

Better concrete construction

For the last two years, the Concrete Industry Board of New York City has been active in bringing into the open factors that tend to impair the quality of concrete construction. Many unsatisfactory practices have been exposed, and it is noteworthy that most of these can be found in all parts of the country. So the program that the CIB has just initiated to correct them will be of interest to engineers everywhere.

The CIB recommends, in effect, that testing laboratories meet approved standards; ready-mix plants guarantee their product; contractors and designers accept responsibility for their work; contractors' superintendents and concrete inspectors be qualified by education and experience for their assignments; and that the available cements, aggregates and admixtures be evaluated to quality standards. Since none of these objectives can be attained by fiat, the program depends on voluntary cooperation and enlightened self-interest.

Thus, testing laboratories' representatives will be invited to participate in the setting up of standards and will be asked to make their personnel and facilities available for inspection by an agreed upon agency. The CIB will maintain a list of approved laboratories. This is expected to eliminate unfair competition from firms that use low-paid, poorly qualified personnel and inadequate equipment.

Similarly, concrete producers will be requested to certify the quality of their product just as steel producers certify theirs. If they accede, it is expected that purchasers will be asked to forego some of their present practices—such as specifying brands of cement, naming aggregate suppliers and the like—that producers claim do little to insure desired properties of concrete, but make it difficult for the ready-mix plants to meet concrete specifications.

Codes of ethics will be set up to enforce good-practice recommendations. While the CIB has not yet started development of such codes, it may be predicted that these will tend to make contractors and designers accept more responsibility for their work. As a result, such questionable practices as contractors employing testing laboratories or inspectors on behalf of the owner and of making test cylinders may be halted. Designers may be required to assume responsibility for field checking the structures they design (if such a provision is not soon written into the city building code).

The CIB is to be commended for developing this program. Even if only a few of the recommendations are implemented, a considerable upgrading of concrete construction should result.

The issue at Niagara

Senator Morse spoke truly when he said in Congress last week, relative to the Niagara power controversy: "We are not dealing with New York power alone, or with New England power alone, but with that of every state in the Union." For, stripped to its bare essentials, the issue at Niagara is whether any private utility shall henceforth be permitted to build a hydroelectric project.

Niagara is not a multipurpose project in which such governmental responsibilities as flood control and irrigation are present. It is as purely a power project as is ever apt to be encountered. Nor is its financing or building beyond the capabilities of private capital.

For Congress then to assign its development to the New York State Power Authority will be for it to establish an entirely new hydro power policy—and incidentally one at variance not only with present federal policy but more restrictive on private hydro development than any policy that even the most zealous public power proponents of the past ever publicly professed to follow. Regarded in this light, the issue at Niagara is indeed of importance to "every state in the Union."

built in
1941
concrete in excellent condition

↑ Kansas City Water Softening Plant, Kansas City, Mo. Engrs.—Burns & McDonnell Engr. Co. and Black & Veatch Engr. Co.; Contr.—S. Patti Constr. Co.—all of Kansas City, Mo.

↓ $900,000 Addition, Engrs.—Burns & McDonnell Engr. Co.; Contr.—Interstate Constr. Co., both of Kansas City, Mo.; Ready-Mixed Concrete Supplied by Concrete Materials Co., Kansas City, Kan.

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